ENGINEERING NEWS-RECORD

Exterior columns pose a connection problem p.34

A McGRAW-HILL PUBLICATION

STEVENS RICE GS N
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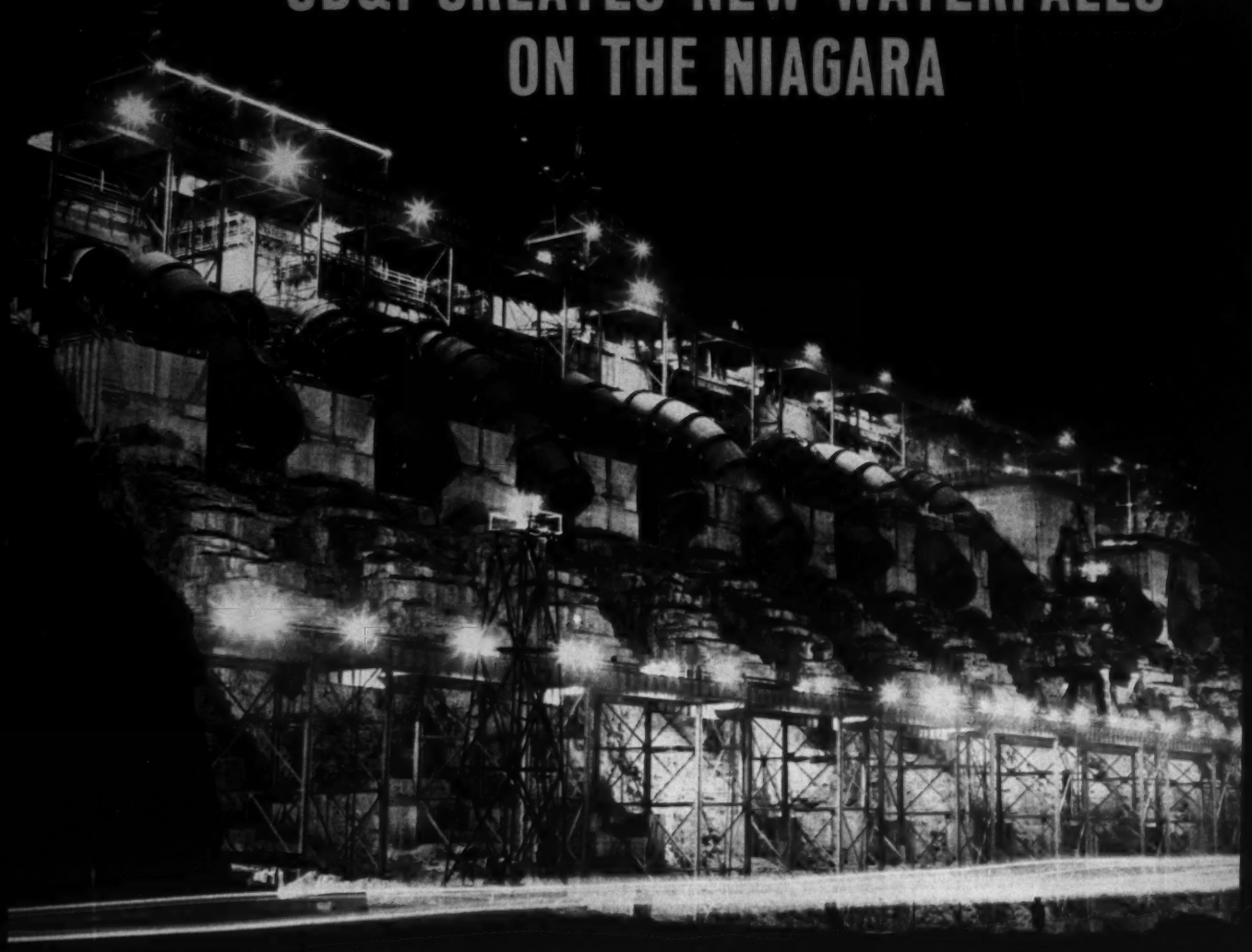
CB&I CREATES NEW WATERFALLS ON THE NIAGARA



E57CB

28 ft. diameter penstocks at Niagara Station near Lewiston, N. Y.

CB&I is constructing 25 penstocks for the gigantic Niagara Power Project of the New York Power Authority. These huge structures will rechannel a portion of the rushing Niagara River into the 25 scroll cases being erected by CB&I. The man-made waterfalls will energize one of the free world's largest hydroelectric plants.

CB&I's role in this vast construction project utilizes the *coordinated services* that have built an enviable world reputation for our company. The result is *Creative Craftsmanship in Steel*. Let us tackle your task in the same efficient manner.

Giant scroll case dwarfs workman during "fitting-up" operation at CB&I's Greenville, Pennsylvania plant.

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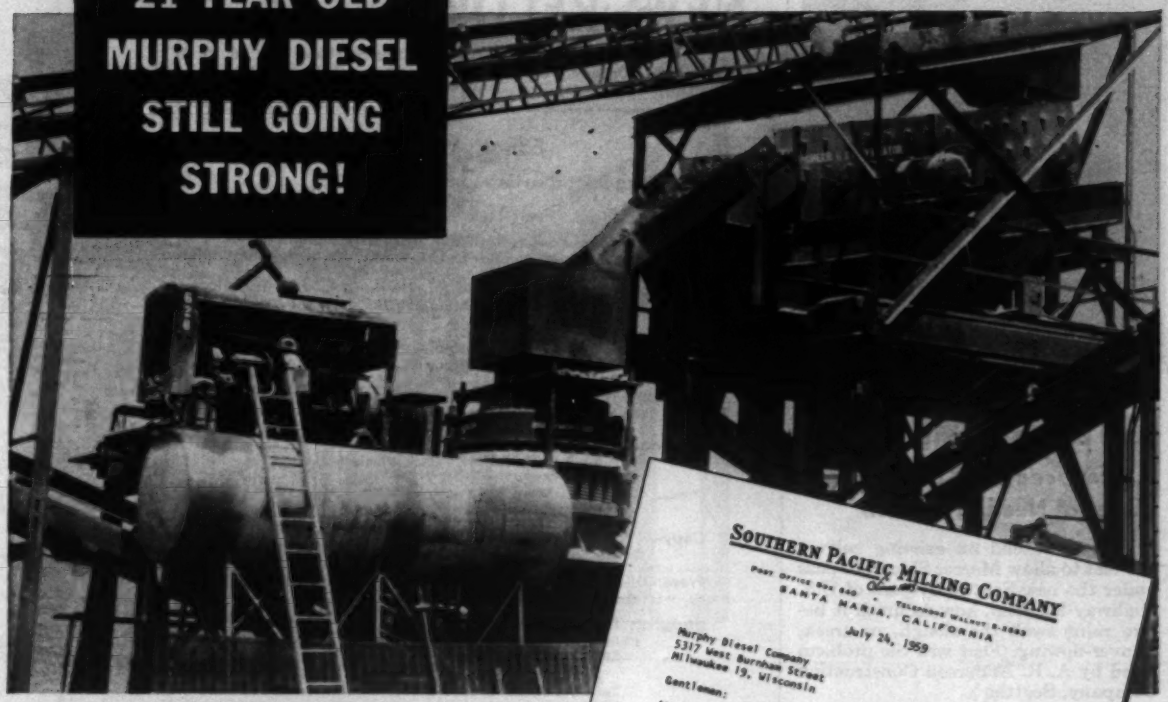
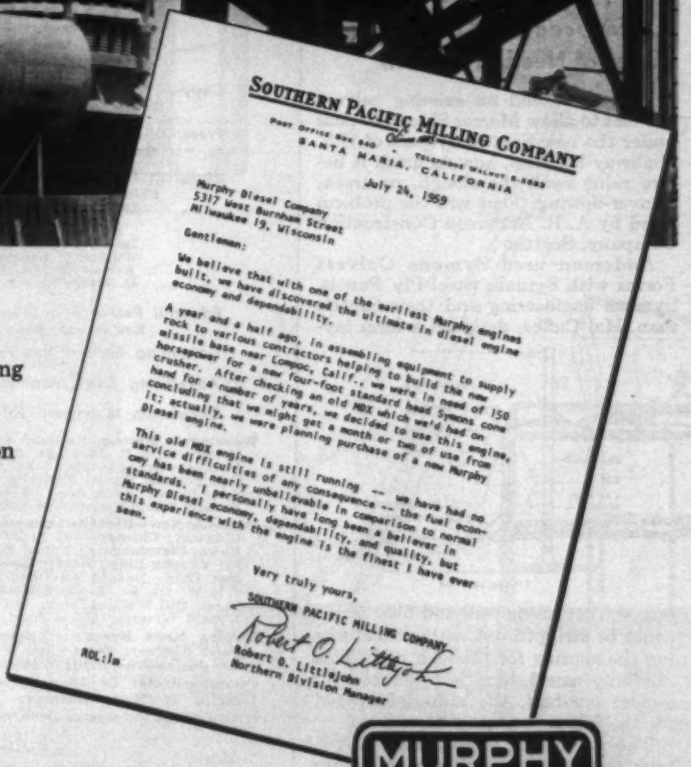
21 YEAR OLD MURPHY DIESEL STILL GOING STRONG!





SOUTHERN PACIFIC MILLING COMPANY

Post Office Box 449 · Telephone Walnut 5-2689
SANTA MARIA, CALIFORNIA

July 24, 1959

Murphy Diesel Company
5317 West Burnham Street
Milwaukee 19, Wisconsin

Gentlemen:

We believe that with one of the earliest Murphy engines built, we have discovered the ultimate in diesel engine economy and dependability.

A year and a half ago, in assembling equipment to supply rock to various contractors helping to build the new missile base near Lompoc, Calif., we were in need of 150 horsepower for a new four-foot standard head Symons cone crusher. After checking an old MDX which we'd had on hand for a number of years, we decided to use this engine, concluding that we might get a month or two of use from it; actually, we were planning purchase of a new Murphy Diesel engine.

This old MDX engine is still running -- we have had no service difficulties of any consequence -- the fuel economy has been nearly unbelievable in comparison to normal standards. I personally have long been a believer in Murphy Diesel economy, dependability, and quality, but this experience with the engine is the finest I have ever seen.

Very truly yours,

SOUTHERN PACIFIC MILLING COMPANY

Robert O. Littlejohn

Robert O. Littlejohn
Northern Division Manager

ROL:lm

Proof that Murphy Diesel saves you money

This early model Murphy is still earning its way! According to the owner, it is operating efficiently with fuel economy that is "nearly unbelievable in comparison to normal standards." The experience of Southern Pacific Milling Company with this 21-year-old Murphy is the best evidence that operators who want "the ultimate in Diesel engine economy and dependability" are wise to choose Murphy.

Twenty-one years of improvement in diesel engine design and construction make today's Murphy Diesel first choice for always-dependable, low-cost operation.

MURPHY DIESEL

4181N

HEAVY-DUTY POWER FOR CONSTRUCTION

Murphy Diesel engines and power units are available in sizes from 105 to 320 HP with engine speeds of 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 60 to 188 K.W.

MURPHY DIESEL COMPANY

5321 W. Burnham St., Milwaukee, Wisconsin

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Throughout the Nation

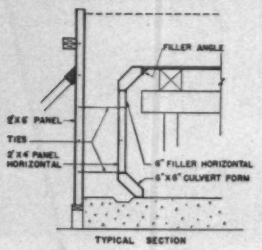
492 Ft. Culvert

Symons Prefab Forms and Engineering Service

. . . Reduced by About ½ Material Needed for Job

How to extend an existing culvert 492 feet to allow Mercer Slough to pass under the new Seattle by-pass of U.S. Highway 99. Also, how to finish it before rains swell the slough, or creek, to over-flowing. That was the problem faced by A. R. Anderson Construction Company, Seattle.

Anderson used Symons Culvert Forms with Symons Steel-Ply Panels. Symons engineering and their Seattle man, Hal Caffee, designed a form lay-



out, so that inside wall and fillet forms could be stripped out without disturbing the shoring for the slab roof. This not only saved time but reduced by almost one-half, the material needed for the job.

The pay-off! It is estimated that it took under 200 man hours to set up and pour the job and under 60 man hours to strip the forms.

For the complete story on the *Seattle Culvert Job*, send in request on your company letterhead. Symons Steel-Ply Forms rented with purchase option.

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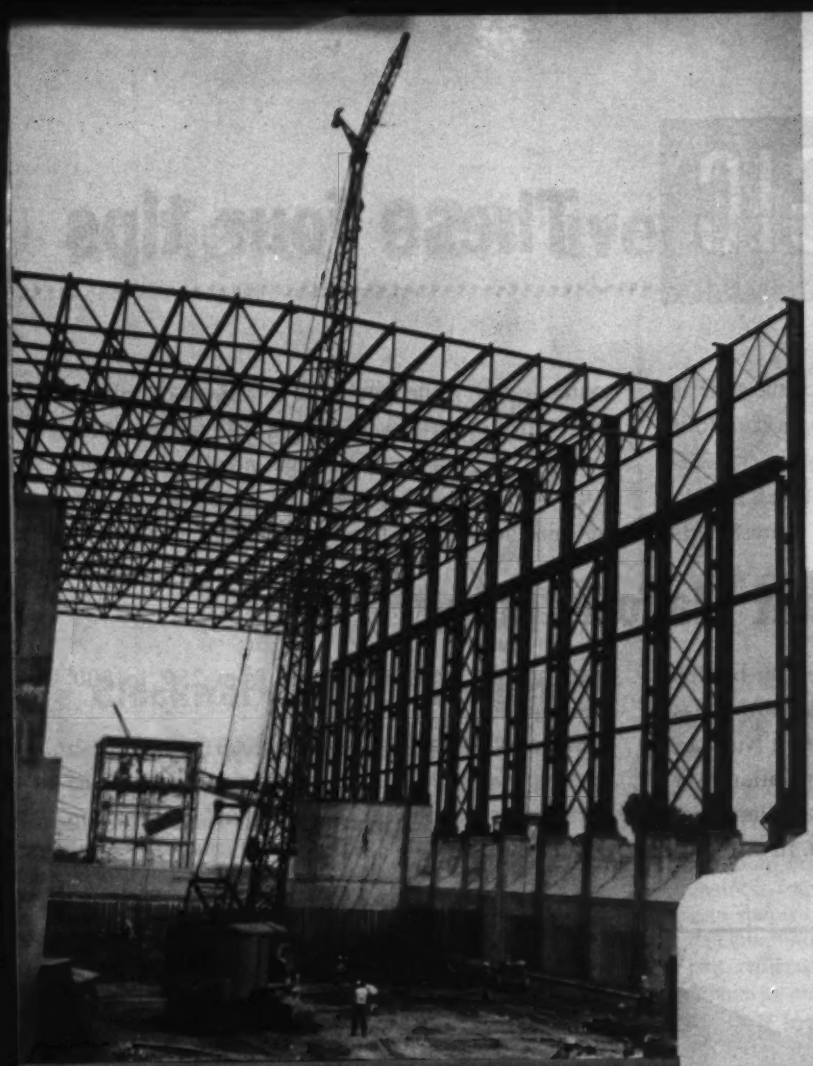
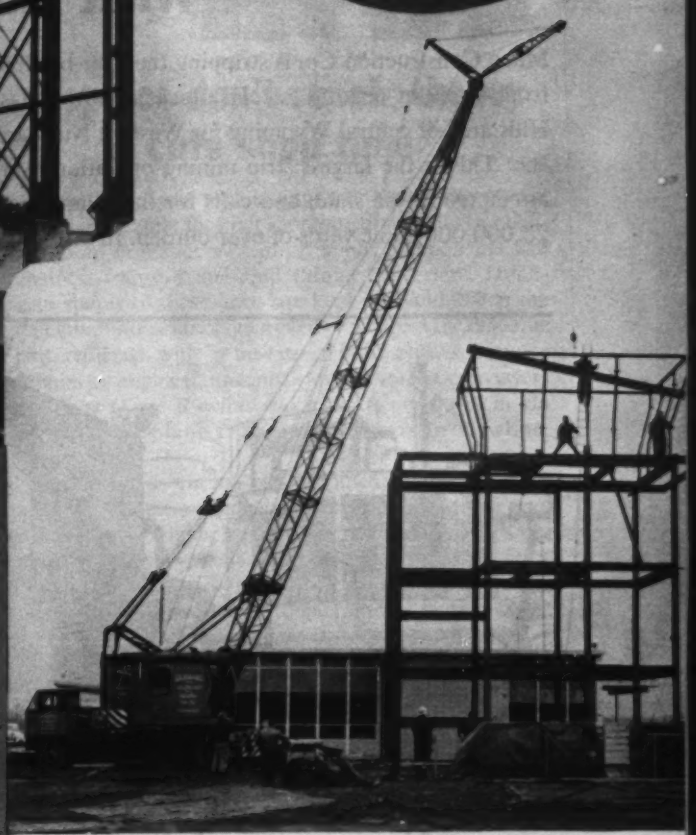


WHY THE HIGHLIFTS ARE SMOOTHER WITH A NORTHWEST!



"TIME IS MONEY" is a trite saying but it's still a fact! A machine that can set your steel a little faster, pour your concrete more accurately and release the mixer more quickly and do all the other lifting jobs that face you in less time is going to make money. Northwest Crane equipment brings you advantages that smooth out the lifting jobs and bring you that highly desirable feature of always being ready to go.

You sit in the cab of a Northwest, setting a truss 40 ft. up. Complete visibility is yours. You have the true "feel" of the load as it rises into place. Through the Feather-Touch Clutch Control you have precise, instant response to controls and the action of the clutch is in exact proportion to the movement of the operating lever. With the velvet action of Uniform Pressure Swing Clutches, a hitch to the right or left to meet the pin setter's requirements is smooth, jerkless, accurate. You change your boom angle and you know as you do so that no matter how much you have been raising and lowering that boom, you are going to get positive response. Smooth, dependable booming is a *must* in crane work. The Northwest Independent High Speed Boom hoist is a massive, rugged unit with the ability to boom up and down continuously under heavy load without over-heating or fading.

These things facilitate faster schedules and lower costs in erection schedules. Everything you need for crane work is available. Sectional Boom Hoist Rigging, Boom Struts, 3rd Drums, Sectional Jibs—these and many more crane features add up to a heavy duty machine designed to meet the extra demands of varied crane jobs under difficult conditions and for bucket work involving fast production schedules.

NORTHWEST ENGINEERING COMPANY
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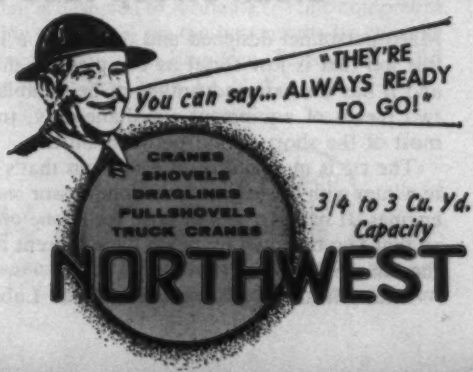


LUBE LOGIC

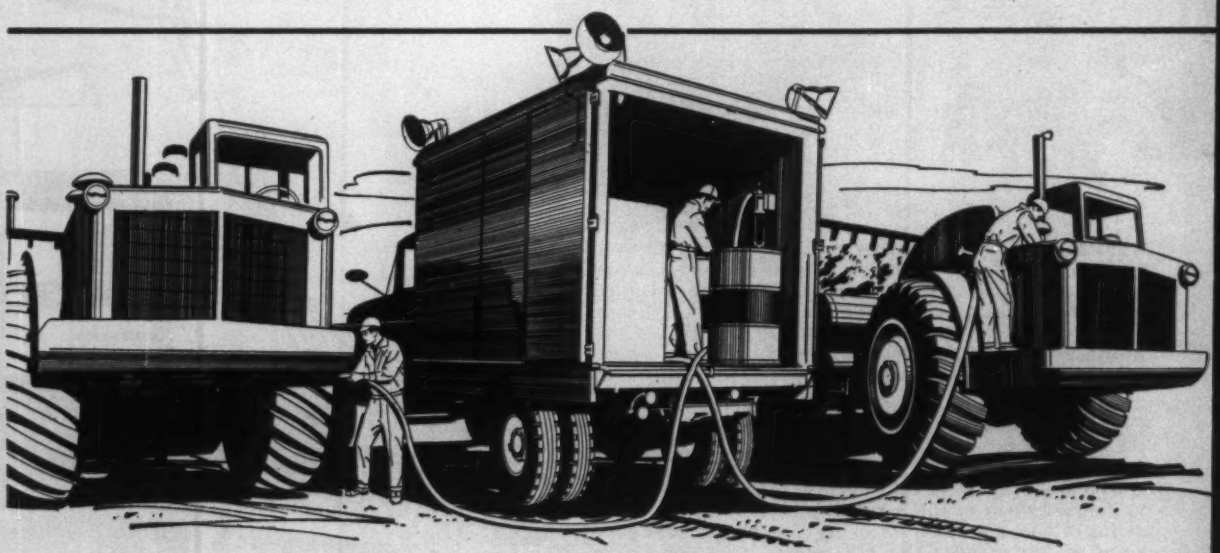
These four tips

Keeping equipment on the job 92% of the time is an achievement anywhere. But when you can do it while operating in sandstorm country, over 12% grades out of a 300′ deep pit to an additional 200′ to top of spoil area, 100 miles from the nearest parts source – and while you're at it remove a million cubic yards of earth every month, it's a record. Maco Construction Co. is doing it right now, and in doing it they've set up such a fine maintenance routine that we think it'll be a help to you to read about it.

What Maco is doing

Maco Construction Co. is stripping the over-burden from uranium deposits recently located in the Gas Hills area of central Wyoming for Western Nuclear, Inc. This is the largest strip mining operation ever attempted in the state, and calls for the removal of 25,000,000 cubic yards of over-burden. In this large open pit, the uranium ore lies from 250′ to 300′ below grade.

Maco is using twenty-two scrapers, six push tractors, two bulldozers, two motor patrols and one backhoe on the job. Texaco fuels and lubricants are used exclusively.



Clean-sweep lube rig handles two machines at once

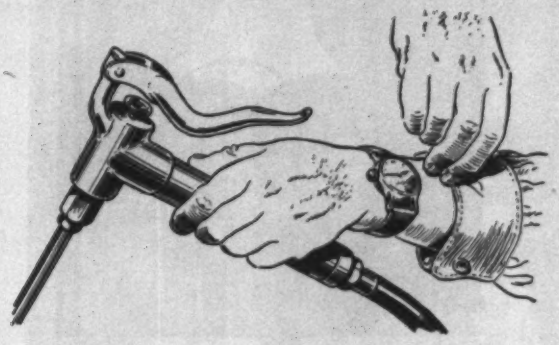
Maco personnel designed and developed a lube rig for this job that is just about as complete as they come – and it has the extra advantage of being able to service two pieces of equipment simultaneously, to make the most of the short period between shifts.

The rig is mounted on a 2 ton van that's kept warm in winter with waste heat from compressor and generator engines. It has two sets of hose reels, one on each side, so that two men can lubricate two different machines at the same time.

Since Maco has a Texaco Simplified Lube Plan, the rig can accommodate sufficient lubricant inventory for the project. Air motors drive the lubricant pumps, and a separate electric air compressor furnishes air. A 25 KW diesel generator set mounted in the van provides power for air compressors, power pumps and the four big floodlights. Maco personnel built the tanks that hold motor oil and hydraulic fluid; transmission and lube grease are pumped direct from original containers.

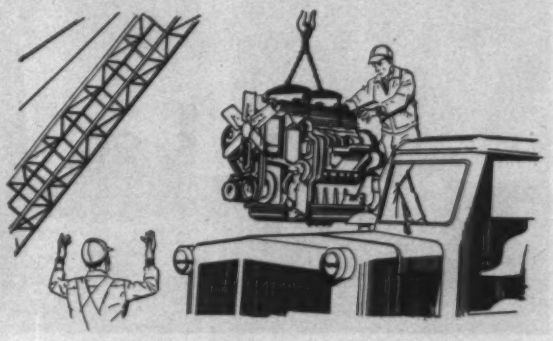
With this lube rig it's possible for the maintenance crew to lubricate all major equipment in the three hour period between shifts, so no work time is lost.

achieved 92% average availability



Clockwork lube scheduling boosts availability

Every machine on Maco's spread is serviced every day, in the period between the close of the day shift, at 4:30, and the beginning of the night shift, at 7:30. The 22 scrapers are lined up in a double row, and the mobile rig passes between them. Every machine is lubricated completely, and air filters are cleaned, at the end of every 10-hour shift. Crankcases are drained every 100 hours. Lube interval on gearboxes and torque converters is 2000 hours.

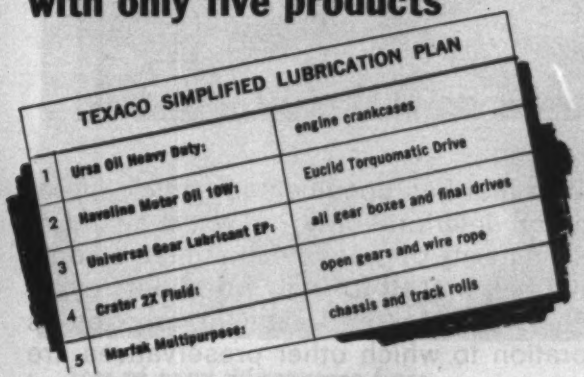


Replace-don't-repair theory cuts shop time

Although Maco is well equipped to handle emergency repair on the job, they cut shoptime drastically by sticking to an exchange system on major components like engines, transmissions and torque converters. Duplicate spares of these units are kept on hand. Then the defective unit is simply removed intact from the machine and replaced with a new or rebuilt one. All major repairs on engines, transmissions and torque converters are done at the Rawlins shops. Parts are flown in via Maco's own plane from headquarters in Rawlins, Wyoming.

Minimum downtime on equipment is the principal advantage of the exchange system, but not the only one. For instance, engine repairs can all be made in a fully equipped shop, without having to rush or make temporary repairs; and this system also ensures full availability of the field maintenance crew for their routine work.

Simplified Lubrication Plan protects 33 major units with only five products



TEXACO SIMPLIFIED LUBRICATION PLAN		
1	Ursa Oil Heavy Duty:	engine crankcases
2	Havoline Motor Oil 10W:	Euclid Torquomatic Drive
3	Universal Gear Lubricant EP:	all gear boxes and final drives
4	Crater 2X Fluid:	open gears and wire rope
5	Marfak Multipurpose:	chassis and track rolls

With their Texaco Simplified Lubrication Plan, Maco gets fast, thorough, systematic lubrication for all major equipment with the smallest possible lube inventory. This inventory simplifies and speeds up application routine because it avoids confusion, minimizes downtime due to misapplication of lubricants, and lets Maco put their lube inventory on the mobile rig for complete on-the-spot coverage.

Texaco Lubrication Engineers

There are 2,300 Texaco Distributing Plants in the U. S. ready at any time to help you develop a Texaco Simplified Lubrication Plan for your next job. Since every Texaco Plan is designed to lubricate specific equipment on a specific job, you'll get the best results by consulting a Texaco Lubrication Engineer. Texaco Inc., 135 East 42nd Street, New York 17, N. Y.

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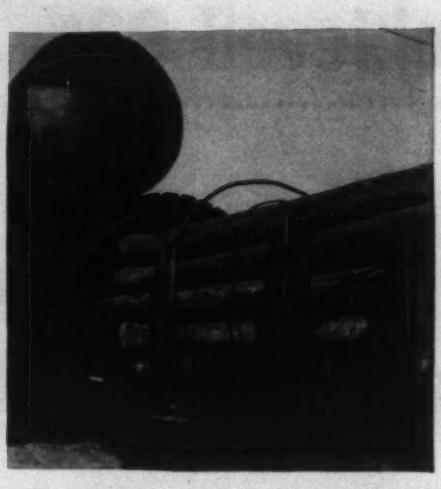
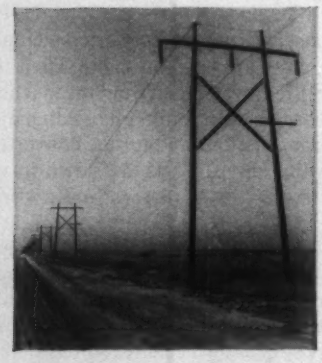
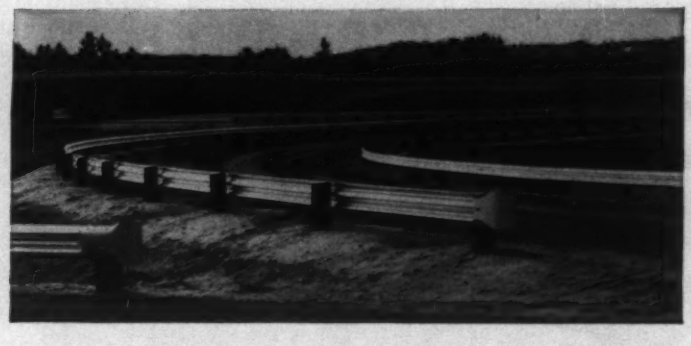


IN PRESERVATIVES

that give long life to pressure-treated wood piling, poles and posts





Coal tar creosote is the *only* wood preservative that has documented service life of 60 years in the protection of wood from decay and deterioration. • Part of the secret of this unequalled protection is the molecular complexity of creosote: it contains some 160 compounds, of which more than 50 have been proved toxic to wood-destroying insects and fungi. • Driven deep into wood fibers by pressure treatment, creosote is tenacious, resisting the leaching and evaporation to which other preservatives are subject. • Creosote makes wood a low-cost, permanent material for foundation and marine piling, highway guard rail posts and fencing, in fact, all timber construction where economy and long life are important. Your nearby Koppers representative can tell you much more about this modern wood preservative with the proved performance record.

KOPPERS TAR PRODUCTS DIVISION, PITTSBURGH 19, PA.

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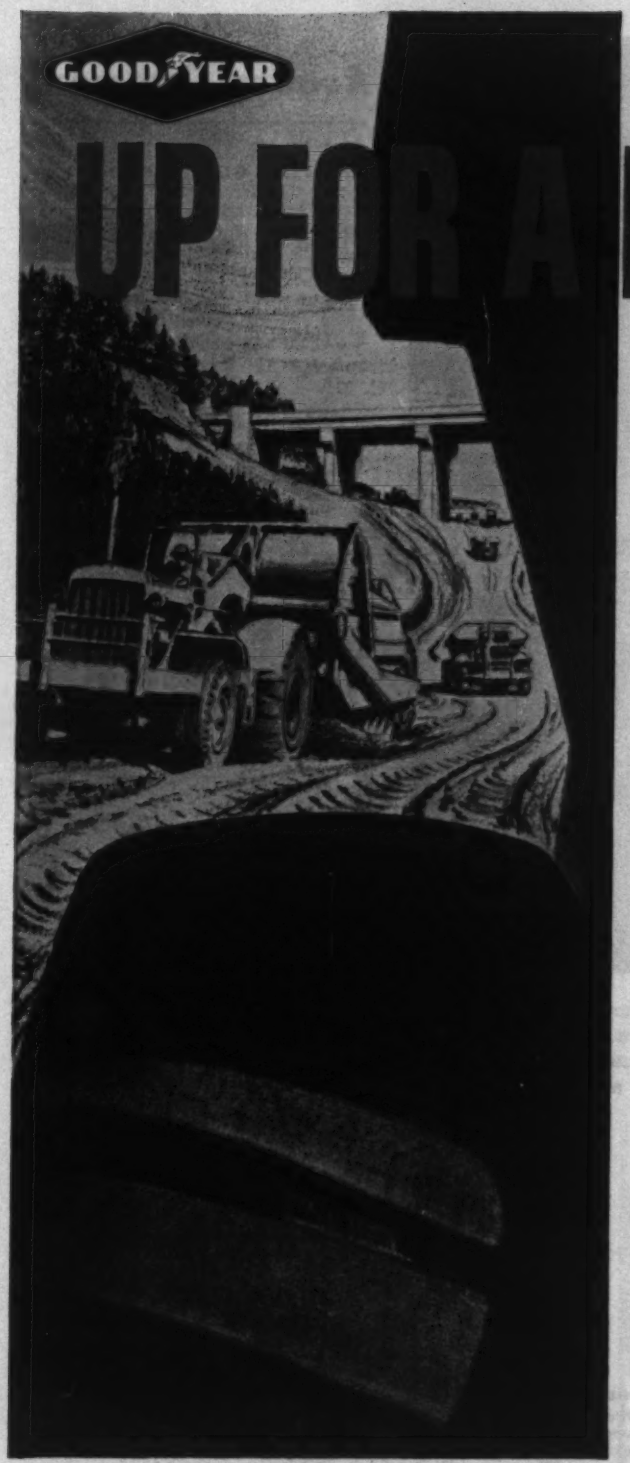


UP FOR A BIG BID?

Let Goodyear keep your tire costs down

FINDING THE WORK FACTORS—Goodyear Big-Tire Specialists are prepared to analyze your tire needs with an eye to keeping costs under control. These specialists will check the terrain, loads, climate, roads, schedules and speed problems that confront you, and can select the right Goodyear tires to help you solve them.

PUTTING BIG-TIRE KNOW-HOW TO WORK—From the world's greatest wealth of experience, Goodyear Big-Tire Specialists are uniquely qualified to help you. And they'll provide the best in tread and body designs to help safeguard your contract and your profits.

SETTING UP BIG-TIRE SERVICE—You say the word, and Goodyear Big-Tire Specialists will set up a tire-maintenance program at the jobsite to help save you man-hours, machine-hours and useful tire life. In addition, Goodyear Contractor Service *will travel* with your job—handle all your tire maintenance and repair needs.

With BIG-TIRE PERFORMANCE
Example: SUPER HARD ROCK LUG

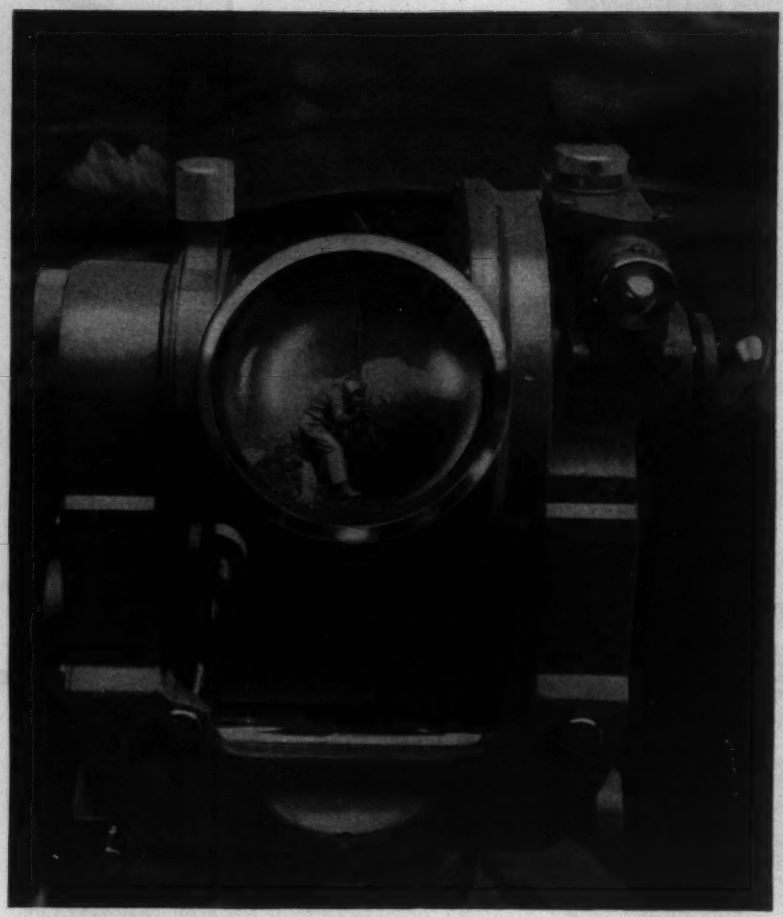
Here's one of Goodyear's Big Tires for the Big Bid you have coming up. It's the SUPER HARD ROCK LUG, built for heavy loads and no roads to make the going easy. Triple-tough 3-T Nylon Cord for the greatest tire stamina, plus new, special cut-shrugging rubber compounds, make this tire a real cost-saver in the roughest off-highway service.

For details on this and other Goodyear special-duty tires, and the Goodyear Contractor Service, see your Goodyear dealer. Or write Goodyear, Truck Tire Dept., Akron 16, Ohio.

Lots of good things come from

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND



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Reader Comment

Watch Your Accent

SIR—Engineers have occasionally been taken to task for careless use of English, but they have enjoyed universal respect for their avoidance of ostentatious speech. One wonders therefore about the increasing frequency of the use in the profession of the pronunciation of research as reSEARCH.

There can be no question of the correctness of this pronunciation, as there can be no question that *laugh* is correctly pronounced with a broad *a*. It is not unreasonable to conclude that an engineer who says reSEARCH is putting on airs, unless he confirms his careful rearing by consistency in the pronunciation of other, similar words of French origin. Thus we are entitled to hear him:

1. Take a deTOUR around new construction.
2. Pay for his daughter's deBUT.
3. Use deCOYS when duck hunting.
4. Locate a road in a deFILE.
5. Have a draftsman deTAIL the gear train on the drawing.
6. Make disCHARGE measurements in the stream.
7. Be an exPERT witness.
8. Evaluate water reSOURCES.
9. Make a reCESS in the wall.
10. Design a reCOIL spring.
11. Have reCOURSE to the calculus.

Surely other such pitfalls could be reSEARCHed.

EUGENE P. FORTSON, JR
Chief, Hydraulics Division
Waterways Experiment Station
Vicksburg, Miss.

Editor's note: REsearch or reSEARCH, civil engineering could use more of it. Actually, Webster preFERS Reader Fortson's Nos. 4, 5, 8 and 9.

New Bidding Plan

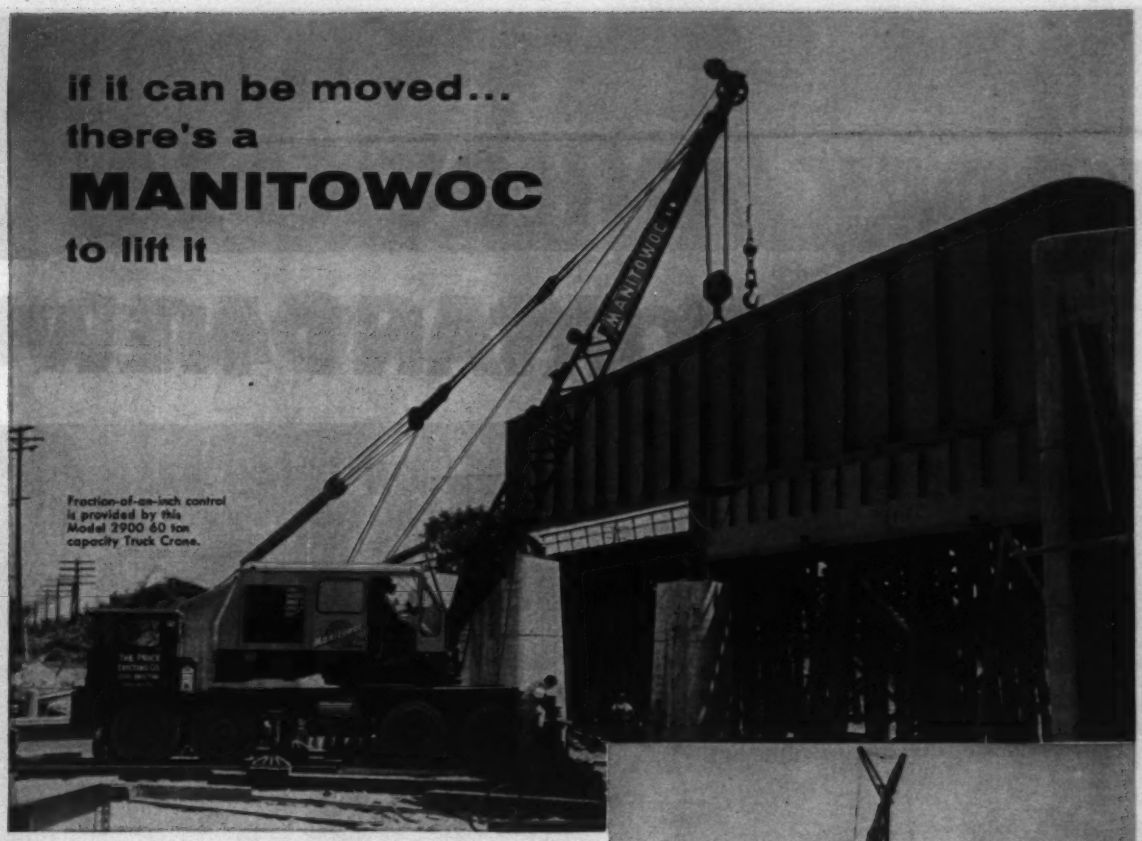
SIR—In regard to Mr. Priest's letter about the wasted manpower in preparing bidding estimates (ENR July 21, p. 16), I share his concern and suggest the following remedy:

1. Have contractors submit unit price bids for each major work, such as foundation formwork or concrete in place. These unit prices would be based on estimated quantities furnished

(*Reader Comment continued p. 12*)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

if it can be moved... there's a MANITOWOC to lift it



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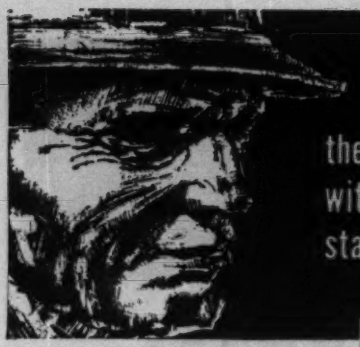

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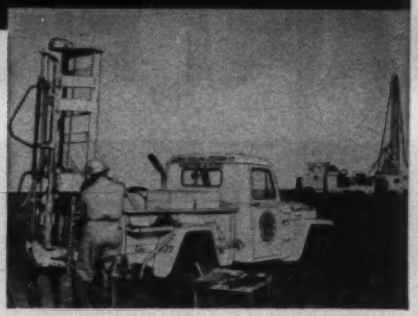

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. . . Reader Comment

by the solicitor of the bids. Only a few general drawings would be given the contractor at this time.

2. Using the unit price bids, the solicitor would select two or three contractors to submit fixed bids based on complete specifications and drawings. The detailed estimates must be equal to or lower than those submitted under number one above.

This procedure would reduce both the number of contractors making detailed estimates and estimating costs, without reducing competition.

ROBERT W. LEACH
Caracas, Venezuela

Bonita Springs Back

SIR—In your article on the damage done by hurricane Donna (ENR Sept. 22, p. 44), you mention that the town of Bonita Springs was completely wiped out. Bonita Springs suffered only minor damage.

Bonita Beach, a settlement along the Gulf of Mexico about five miles west of Bonita Springs, did suffer serious damage, mostly from hurricane tides 8 to 10 ft. above normal.

Practically all houses on stilts high enough to be above the tides escaped damage.

A. O. UTTERBACK
W. R. Wilson & Associates, Inc
Consulting Engineers
Naples, Fla.

Help Wanted

SIR—In checking through some old technical books I have had for a number of years, I find what appears to be a first edition of the "The Civil Engineer's Pocket-Book" by John C. Trautwine. It was published by Claxton, Remsen and Haffelfinger, Philadelphia, in 1872.

I do not know if it is a first edition and, if it is, whether it has any commercial value as such.

If any of your readers could help me out on the matter, I would be more than glad to receive their comments.

JAMES W. DARLING
1108 *Orange Avenue*
Ft. Pierce, Fla.

Meanwhile, Back East . . .

SIR—In "Four Hour Subcontractor Bid Plan Goes West" (ENR Sept. 29, p. 64) you describe various locations in the West where this plan is now in operation.

The Washington, D. C., Metropolitan Area installed a four hour bid plan several months ago. About a dozen projects have already been successfully bid under our plan.

RANDALL C. WYANT
Permanent Secretary
Washington Metropolitan Area
Construction Practices Board
Washington, D. C.

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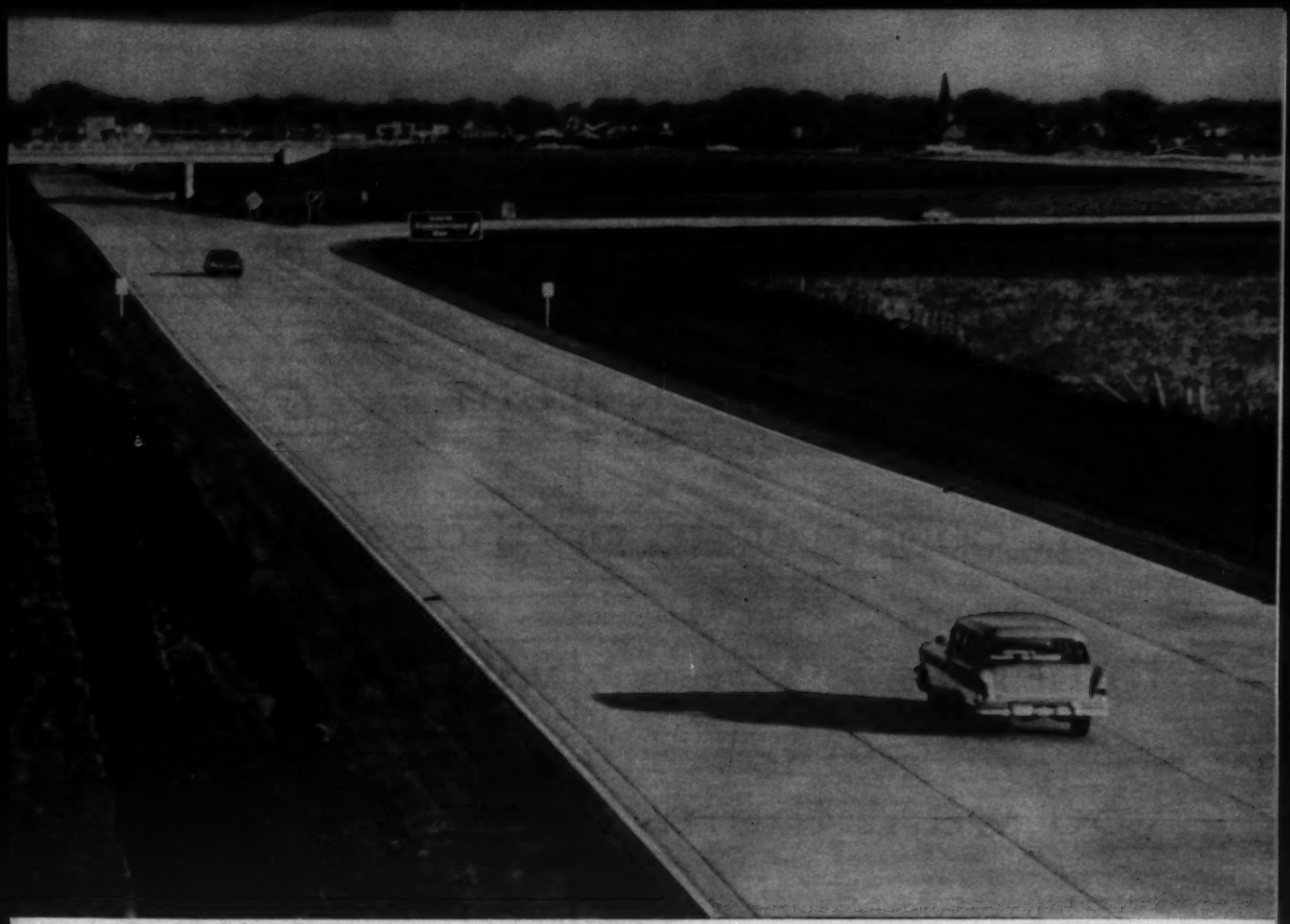

under the hi-speed pounding of modern traffic

Cook County, Illinois has opened the first section of its new Northwest Expressway. And, like other expressways built under the authority and supervision of that county's Department of Highways, it is steel reinforced.

An anticipated daily count of 31,000 vehicles is expected on this newly opened 4½-mile section which extends from Foster & Central Avenues to the Illinois Toll Highway. This figure indicates what this already busy strip will be subjected to as the traffic load gets heavier. And it points up the importance of building into all new roads and highways the strength it will take to stand up under the almost ceaseless pounding of modern hi-speed traffic in the years ahead.

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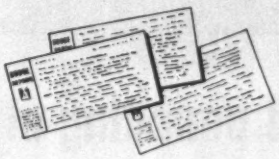

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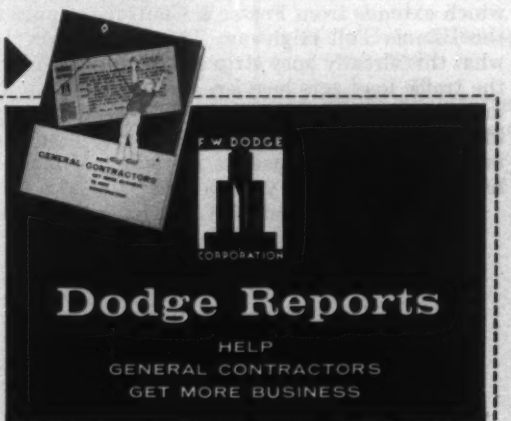

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CONTENTS

Coming: $1 Billion on the Columbia..... 21
Seattle Fair Estimate Tops $70 Million..... 22
Three Days to Build a 600-Car Garage..... 24
Engineers, Contractor Tied to 'Payola'..... 26
Safety Talk—Cheap but Valuable..... 28
Road Lighting—for Safety's Sake..... 28
New Orleans Marches to the Sea..... 32
Fix for Price-Fix..... 32

FEATURES

Deep Box Section Solves Connection Problem.. 34
How Ohio Built Its Best Bituminous Pavement.... 38
Biggest Buyer of Buildings: Modest AT&T..... 44

RESEARCH AND DEVELOPMENT

Emulsion Rejuvenates Asphalt..... 53

NEW PRODUCTS

Just a Phtt of a Boom..... 55
Two Firms Offer Peaking Plants..... 55
River Speed Gaged Acoustically..... 56
Weldmobile Is Redesigned..... 56

MEN AND JOBS

C. C. Bonin: An Engineer with Plenty of Proof.. 59

BUSINESS AND FINANCE

Secret Ingredient in Redevelopment Is Money.. 82

LABOR

Employers: State Your Case..... 85
Can Local Committees Prevent Strikes?..... 86
Prevailing Wages Challenged..... 86

Reader Comment ... 8
Washington Observer 19
Obituaries 64
Unit Prices 65
Materials Prices 66
Construction Reports. 69
Statistics, Indexes ... 84
Editorials 100

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Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

PARADE FORMING?—Marquette Cement Manufacturing Co., Chicago, and Universal-Atlas Cement Division of United States Steel Corp. announced price increases effective January 1 at some of their mills. Marquette's product will go up five cents per barrel at five shipping points in the Midwest and 10 cents in Milwaukee, Wis. and Superior, Ohio. Universal Atlas' will go up 10 cents in Milwaukee and five cents in Hannibal, Mo., but remain unchanged elsewhere. Riverside Cement Co., Los Angeles, broke the ice with a 25-cent boost (ENR Oct. 13, p. 130).

QUALIFYING BASE BUILDERS—The Corps of Engineers Ballistic Missile Construction Office in Los Angeles has heard from about 200 contractors wanting to qualify to bid on upcoming base jobs, and the 15% figure for firms accepted still holds (ENR Oct. 13, p. 36). Corps spokesmen stress that the object is not to reject contractors, but to give all interested and qualified a chance to bid.

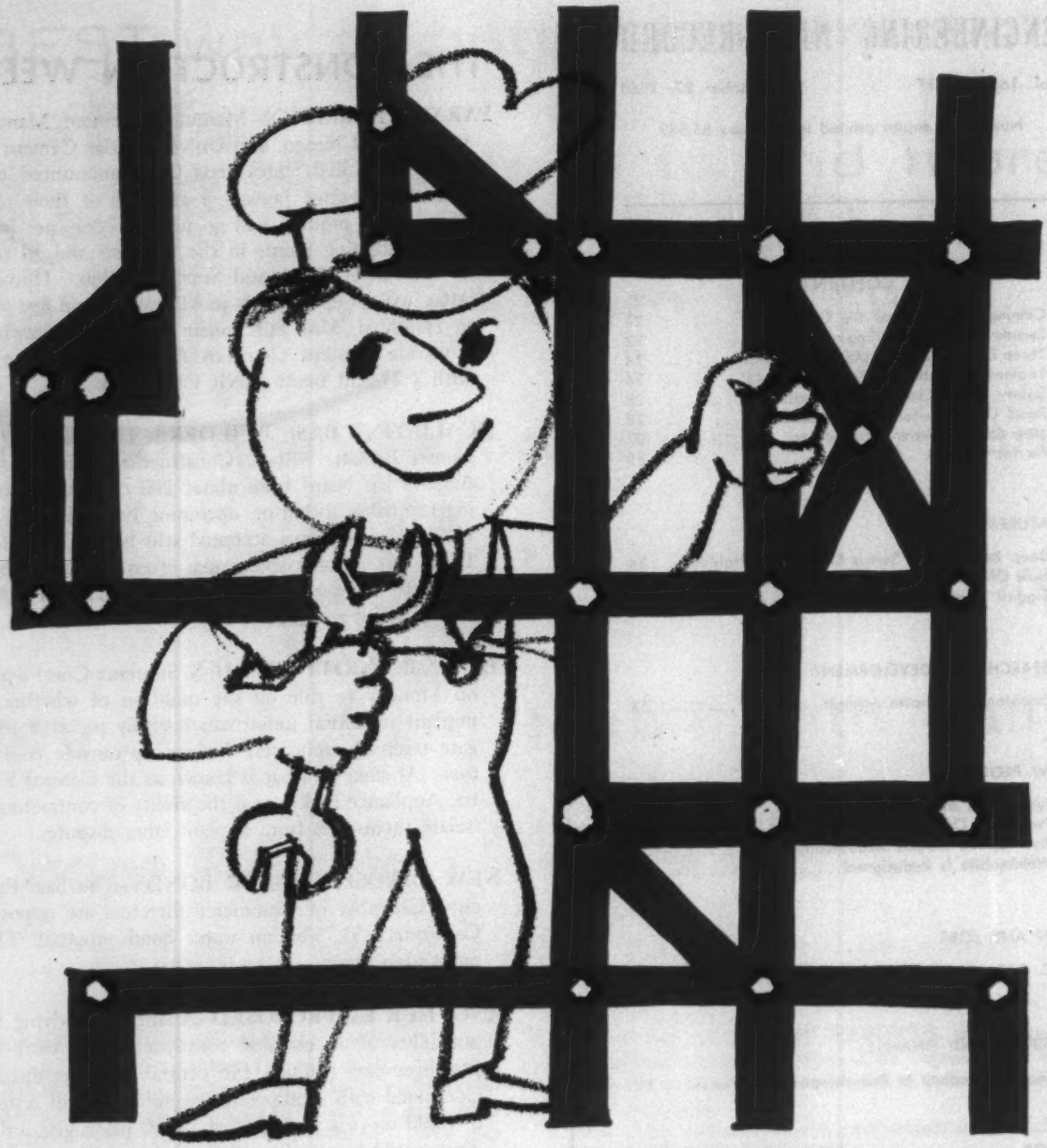
IS IT A BOYCOTT?—The U. S. Supreme Court agreed on Monday to rule on the question of whether an in-plant industrial union can lawfully picket a plant gate reserved exclusively for use by outside contractors. At stake in what is known as the General Electric Appliance Park case is the ability of contractors to isolate themselves from in-plant labor disputes.

NEW OPPOSITION FOR BONDS—The San Francisco Chamber of Commerce directors are opposing California's $1.75-billion water bond proposal. They say it's too vague.

ANOTHER EL PROPOSED—Atlanta is studying the possibility of an elevated conveyor belt to carry six-passenger cars through the central business district. Combined with a proposed new suburban rail system, it would move a peak load of 20,000 passengers a day. That would be equal to the capacity of three expressways and cost but one-fifth as much. Estimate for the conveyor and 16 miles of rail: $59 million.

NEXT FOR BLATNIK'S BOYS?—The Blatnik committee will resume public hearings on alleged irregularities in the highway program shortly after the national election. Among possible targets are Florida and Massachusetts, both in the news this week (see p. 26).

VOTE 'NO' FOR PRESIDENT?—The head of the National Society of Professional Engineers is unhappy with both Presidential candidates. "Neither has indicated that he has any real grasp of the enormity of the role to be played by engineering and the sciences in the '60s," says NSPE president Noah E. Hull.



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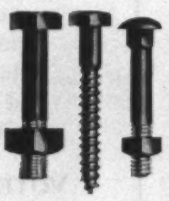

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WASHINGTON OBSERVER

- **Both Snake dams out?**
- **Nixon for low-interest REA loans**
- **Six new Reclamation jobs coming**

● **The Administration is arguing that development of the Middle Snake River can be delayed** as a result of the U. S.-Canadian agreement covering the Columbia River (see p. 21).

President Eisenhower and Interior Under-Secretary Elmer Bennett say the power potential of the Columbia will provide sufficient hydropower for the Northwest for years to come. So, the argument goes, projects on the Snake, affecting the salmon spawning grounds, can be deferred until a surer method of handling the fish can be found.

The Interior Department will express that view to the Federal Power Commission, which is investigating the applications of two groups to build multi-purpose dams at Nez Perce and Mountain Sheep on the Snake. The fish-handling question is a key issue in the contesting applications of the Pacific Northwest Power Co. (private utilities) and the Washington public power supply system (composed of public utility districts). Hearings are scheduled to begin November 4.

—

● **Vice President Nixon promises that 2% loan money for rural electrification projects will be continued if he is elected.** That is a sharp departure from the policy of the Eisenhower Administration, which has advocated that the interest charges on REA loans be increased to reflect the higher cost borrowing of the Treasury Department.

Mr. Nixon has written members of REA co-ops assuring them that enough funds will be available to meet all needs of REA borrowers and that he would maintain the present interest rates. President Eisenhower had wanted rates to go up to equal the rate the Treasury is paying to borrow money, plus 1/5th% to meet overhead.

Mr. Nixon wrote in response to requests from Republican candidates in the Midwest and other rural areas. It came after Democrats had circulated campaign statements charging the Vice President with being anti-REA.

—

● **Starts on six new Bureau of Reclamation projects are planned for next fiscal year.** The Bureau is preparing its budget for President Eisenhower to send to Congress in January. The Bureau is asking for a total of $330 million. This total can be changed between now and January, and the new Administration can have a second say after inauguration.

—

● **Buyers of construction materials may face higher prices because rail rates are going up.** Over objections of shippers of sand and gravel, lumber, cement, stone and scrap and pig iron, the Interstate Commerce Commission permitted a 1.7% increase in freight rail rates. New rates go into effect next week. The hike could mean as much as two cents more a barrel on Portland cement, for example.

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Coming: $1 Billion on the Columbia

Canada and the U.S. last week agreed on a cooperative Columbia River plan that contemplates $850 million of construction in the next 10 years. The two governments released the basics of a treaty they propose to draft and submit for ratification early next year to the U. S. Senate and the Canadian Parliament.

Agreed-upon terms consummate nine months of negotiation, following closely the engineering principles recommended last December by the U.S.-Canadian International Joint Commission (ENR Dec. 24, 1959, p. 20).

The basic provisions give top priority to three Canadian dams—High Arrow, Duncan and Mica Creek—to furnish 15.5 million acre-ft of upstream storage by 1970, and give the green light for a start on Libby Dam in Montana.

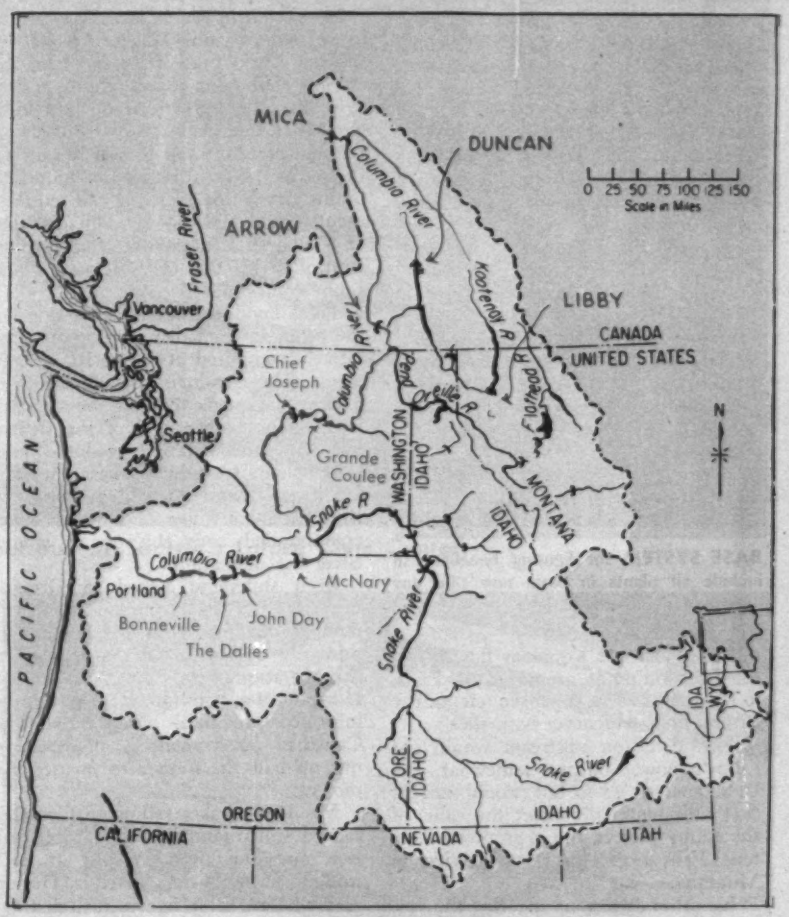
Canada is to get half the additional power that her upstream storage enables U. S. downriver plants to produce, plus a cash payment for some 60 years for half the U.S. flood control benefits resulting from Canadian impoundments. In turn, Canada accepts limits on diversion and later upstream developments to assure continuation of the U. S. benefits.

Fast action is expected in concluding and carrying out the proposed treaty. The negotiators, of course, specify no calendar dates in their joint report to the two governments, but an appended analysis by the U.S. delegation sets a 1970 target for completion of the three Canadian projects and Libby Dam.

These dams, in order of priority and their estimated construction cost are: High Arrow, $71.8 million; Duncan, $25.6 million; Mica, $247.2 million, and Libby, $322.9 million. Libby will get credit for downstream benefits only after the three Canadian projects have received full credit.

According to the joint timetable, High Arrow and Duncan will provide 8.5 million acre-ft of storage five years after ratification of the treaty. Four years later Mica Creek will increase Canada's river-regulating storage capacity to 15.5 million acre-ft.

Total construction investment estimated for the first nine years also includes about $156 million for transmission lines and $24 million for additional generating units at downstream plants. These added costs fall mainly on the U.S. Over-all required investment in the nine years amounts to $453 million for the U.S. and $402.5 million for Canada.



Columbia Basin is headed for international development.

No major projects are called for beyond 1970. During the following 15 years, however, the U.S. would carry out its cooperative commitments by investing an additional $293 million in downstream generating facilities and another $140 million in transmission lines. Canada's required expenditure in the same period would drop to $50 million for transmission lines.

An assured life of 60 years is proposed for the treaty, with a provision that it continue in effect indefinitely thereafter unless either nation gives a 10-year advance notice that termination is desired. Other provisions spell out development rights and cooperative obligations of both countries. Flood control benefits, for one example, are to remain available to the U.S. throughout the useful life of the Canadian dams, no matter what happens to other parts of the treaty.

For Libby Dam, Canada agrees to provide and prepare at its own expense that portion of the required reservoir area extending 42 miles up the Kootenay River into Canada. If Libby is to be built, however, the U.S. must begin work on the project within five years after ratification of the treaty. Libby has been authorized since 1950.

Canada retains limited rights to divert water from the Kootenay to the Columbia, starting 20 years after the treaty takes effect. Canada then could divert not more than 1.5 million acre-ft a year, but only in such a manner as

Project	Installed Capacity — Initial 1,000 kw	Ultimate 1,000 kw
Hungry Horse	285,000	285,000
Kerr	168,000	168,000
Thompson Falls	30,000	150,000
Noxon Rapids	336,000	420,000
Cabinet Gorge	200,00	300,000
Albeni Falls	43,000	43,000
Box Canyon	60,000	60,000
Grand Coulee	1,944,000	3,672,000
Chief Joseph	1,024,000	1,728,000
Wells	400,000	667,000
Rocky Reach	712,000	1,118,000
Rock Island	212,000	266,000
Wanapum	831,000	1,330,000
Priest Rapids	789,000	1,262,000
Brownlee	360,000	541,000
Oxbow	190,000	237,000
Ice Harbor	270,000	540,000
McNary	980,000	1,400,000
John Day	1,080,000	3,105,000
The Dalles	1,119,000	1,743,000
Bonneville	518,000	890,000
Kootenay Lake	.....	.....
Chelan	48,000	54,000
Coeur D'Alene L.	.....	.....
TOTAL	11,599,000	19,979,000

BASE SYSTEM for figuring benefits will include all plants in basin now plus any mainstem plants added later.

not to reduce the Kootenay flow below the diversion point, around Canal Flats, to less than 200 cu ft per sec (cfs) or the natural flow, whichever is smaller.

This diversion upstream would cut Libby's power output somewhat, the U.S. analysis says, but would not at that time materially affect the value of the Libby project and a proposed Kootenai Falls project on the same river in Montana.

No other diversions affecting the flow of the Columbia River at the international boundary would be permitted during the term of the treaty. Potential diversions into the Frazer River or elsewhere apparently are precluded by language that bars any transfer of waters from the upper basin by either Canada or the U.S., while still allowing irrigation users to divert water within tributary drainage basins.

Both nations would gain great benefits under the agreement. The three Canadian projects would give the U.S. more than 1,140,000 kw of prime power as its share of the downstream increase. Canada's share would be better than 760,000 kw. The Canadian share is smaller because the U.S. gets credit in the calculations for secondary energy already available at the downstream plants.

Canada's power will be delivered at the boundary over the Bonneville transmission system at U.S. expense. An existing Bonneville east-west grid also will supply stand-by transmission service to an east-west net that Canada will build.

Libby's own generators added to its downstream flow regulation will further increase the firm power from U.S. plants by 544,000 kw.

Flood control benefits accruing to the U.S. from Canadian storage are equally striking. The Corps of Engineers in its current Columbia River studies aims to reduce the 1894 flood of 1.24 million cfs at The Dalles to 800,000 cfs as the first objective and to 600,000 cfs as the second. New storage to be provided by the treaty can meet the full requirements for control to 800,000 cfs, the U.S. analysis says, and adds that further control to 720,000 cfs is assured when Libby comes in.

Total flood control benefits due to the proposed Canadian storage are tentatively computed at about $6 million a year. The agreement provides that the U.S. pay Canada for half the benefits over the 60-year period of the treaty, less the time required to build and start operation of the Canadian storage facilities. Payment would be made in the form of a lump sum whose value compounded over the period would cover the obligation.

In a statement issued in Ottawa, Prime Minister John Diefenbaker pointed out that British Columbia is primarily responsible for construction and operation of the Canadian facilities. However, he said Ottawa has already informed provincial officials that the Canadian government is prepared to put up half the money to finance the projects.

Mr. Diefenbaker estimated Canada's capital construction costs at $450 million and the power return at 1.25 million kw of firm capacity. He explained that these figures included the additional cost and output of generating facilities at the three Canadian storage dams and other sites.

Interior Under-Secretary Elmer F. Bennett told newsmen in Portland, Ore., that the Columbia River agreement eliminates any immediate need for either Nez Perce Dam or High Mountain Sheep Dam on the Snake River. The Interior Department will so inform the Federal Power Commission, he declared. Proponents of these two projects, which are three miles apart, near the confluence of the Salmon and Snake rivers, are competing before the FPC for a license (ENR Oct. 13, p. 32).

Mr. Bennett said power costs from the Canadian storage will be about half the present $17.50 per kilowatt-year rate of the Bonneville Power Administration.

Seattle

Promoters of Seattle's Century 21 World's Fair foresee over $70 million worth of construction, financed by city, state, federal and private funds.

Congress has already appropriated $9 million for scientific exhibits and President Eisenhower has invited 85 nations to participate.

The 74-acre site will be divided into five "worlds" portraying the Brave New World of 2000 A.D. Colorful "Boulevards of the World" will link the worlds of science, art, entertainment, commerce and industry, and Century 21. The exposition is expected to attract 10 million visitors.

Three-quarters of the exposition buildings will remain as the nucleus of Seattle's Civic Center after the fair completes its six-month run in October 1962. Among the permanent buildings:

- Coliseum Century 21, a $4-million structure enclosing nearly four acres of column-free exhibit space.
- U. S. Science Pavilion, a $3.5-million complex of buildings to house the most extensive scientific exhibit ever assembled.
- Century 21 Space Needle, a $2.2-million spire rising 550 ft in the air and offering visitors a sky view of the metropolitan area from a revolving restaurant at the top.
- Seattle's Civic Auditorium, scheduled for $2.5-million conversion into a concert-convention hall on a site adjoining the exposition grounds.

Coliseum Century 21 features a cable-supported roof spanning the 400 x 400-ft area. Three-legged concrete abutements, located at the center of each of the four sides, will resist the thrust of four steel space trusses meeting at the apex, 115 ft above ground floor level.

Steel cables, spaced at 8 ft c-c in perpendicular directions, will frame diagonally between the interior trusses and a peripheral edge beam. They will carry insulated aluminum panels exposed on both roof and ceiling surfaces.

The reinforced concrete edge beams, hollow triangular-shaped sections, will enclose air-circulating units, electrical wiring, mechanical piping and plenum space. The main interior trusses will house light fixtures and mechanical equipment.

After the fair, the glass-walled building will become a sports arena in Seattle's Civic Center.

Howard S. Wright Construction Co. of Seattle has built about 30% of the coliseum, which was designed by Paul Thiry, Seattle architect.

Several other buildings presently under construction are a concert hall, an exhibit hall and a small theater. Con-

Fair Estimate Tops $70 Million

Century 21 Exposition contains nucleus of Seattle's future Civic Center.

struction is scheduled to start on the U. S. Science Pavilion in December. Five buildings will be joined around a central courtyard site for five arching towers symbolic of man's striving for scientific knowledge. Also in the courtyard will be a spacearium, where visitors can view a model of the solar system, and a pool with fountains.

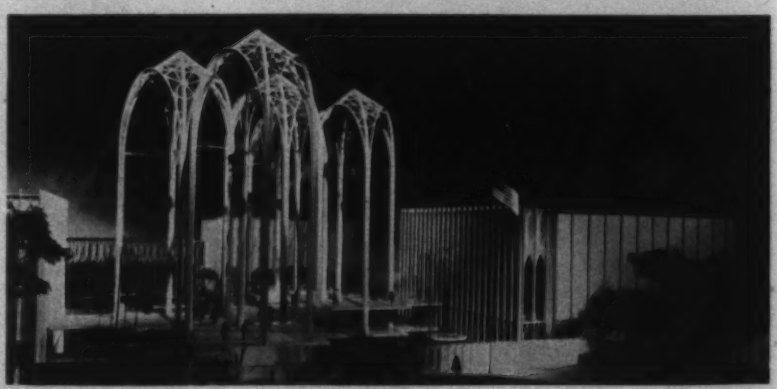
Architects Minoru Yamasaki & Associates of Detroit and Naramore, Bain, Brady and Johanson of Seattle designed precast walls with exposed white quartz aggregate for the science buildings. Structural framing will be prestressed concrete.

The nation's first permanent mass transit monorail will carry visitors over the 1.2-mile stretch between the exposition and downtown Seattle in 96 seconds. The system's two four-car trains will have a capacity of 8,000 persons per hour.

The trains, running on rubber tires and powered by electricity, will ride on prestressed concrete tracks carried by steel T supports. They will have dual controls and each will stay on its own track, making switching unnecessary.

The exposition management expects to sign a $3.5-million contract for construction of the system with Alwac International of Sweden early next month. Alwac will engage a subcontractor for erection of the rail structure.

Coliseum Century 21 is framed with cable-supported roof.



U. S. Science Pavilion features precast concrete walls.

Three Days

THE JOB: Second half of a 1,200-car precast garage.

MONDAY: Just after midnight, crews begin with ramps.

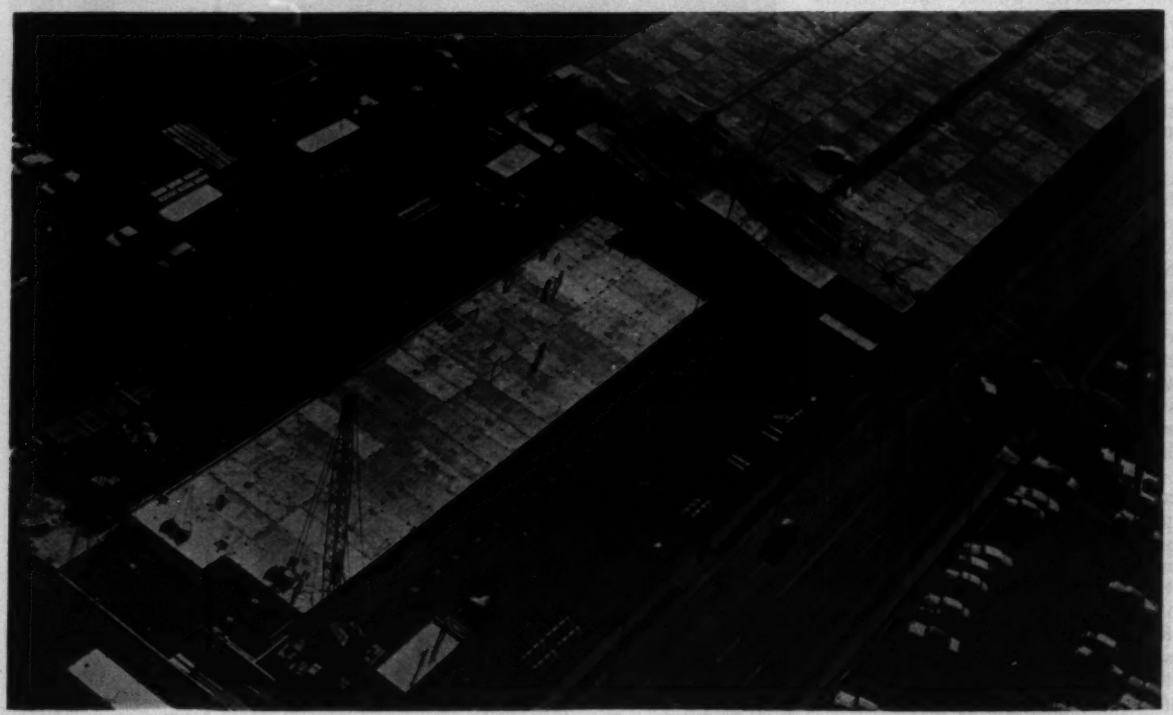
Working around the clock, erection crews put together a 600-car parking structure in 70 hours last week. It was the second half of a 1,200-car capacity Tierpark structure for the Abraham & Straus department store in Hempstead, N. Y. (ENR July 14, p. 34). The first section of the four-story structure was erected earlier this fall in 12 regular working days.

Tierpark, developed by Tishman Research Corp., New York City, capitalizes on the fast erection of only three basic precast concrete elements: floor slabs, ramp sections and columns. Tierpark's repetitive column slab assemblies are suitable for multi-story construction —up to six stories in non-seismic areas —and tier length combinations to suit any particular situation.

The parking structure, viewed end on, is three tiers wide. The middle tier is three decks high over a depressed asphalt ground slab. Outside tiers of two decks each are staggered between the center tier decks.

Equipment for the entire job consisted of two 35-ton-capacity truck cranes, a boom truck for placing columns and accessories and a fleet of 14 trucks.

Construction crews started the erection at 12:01 Monday morning. Tackling the center tier first, workers erected the slab-column combinations hori-



TUESDAY: All core ramps and all the lower center deck are in by early morning.

to Build a 600-Car Garage

zontally, working to the end of the structure on one deck, then returning to place the next level. By Tuesday they were finished with the center and had shifted to the outside tiers.

With one crane on each side of the structure, crews erected the outside tiers vertically from bottom to top of each bay as they worked down the length of the garage.

Working through a day of hard rain, the workers finished the last bays on each side at 10 p. m. Wednesday night.

The constructor, Terry Contracting, Inc., Long Island City, N. Y., worked two 12-hour shifts of about 50 ironworkers each to erect the garage. Electrical and miscellaneous ironwork only required 10 to 12 men each on a single eight-hour shift.

Watching the men at work, John Tishman commented: "We've developed the erection system to the point where it's a completely mechanical operation except for the grouting and caulking—and we're experimenting with that, too."

Each typical pretensioned slab has eight edge connections—two on its interior end and three along each side. While one gang places columns, the slab gang follows behind and lowers slabs with a one-connection picking frame onto the bolted column sections. Workmen immediately make the two interior connections and run up one of the two bolts in each outboard side connection.

Bolting gangs follow several bays behind, finishing all side connections. In case there's slightly more camber in one slab than its neighbor, they spot a light hydraulic jack below the slab edge to eliminate the fractional difference in elevation and to align the close-tolerance connection plates.

Where four bolts project through the slab center from the column below, crews either tie down the next column above or place a cover bolting plate if it's the top deck.

Masons grout the sleeves around the tie bolts to make the structural tie between column and slab. On the deck below, masons dry pack the column top and later finish the joint smooth. This produces a rigid moment connection capable of resisting lateral loads without shear walls or other forms of lateral bracing.

Until the grout sets, steel reshores remain along the center line of the tier where the interior slab edges meet. In addition, the erector sets up cable X-bracing throughout the structure. These lines cross from top to bottom of adjacent columns across each deck. They are tied to slim plates dropped over one of the column bolts above and below the slabs. When the work is finished, the cables are removed and the plates merely burned off flush with the column face.

Cost for the completed structure is $1,200 per car. A Tishman representative calculates that the second half of the garage comes well within the budgeted cost. It was found that once work got under way on the second section, the increased production of the continuous operation more than canceled the premium time cost.

Typical slab panels in the Tierpark system are pretensioned for two-way cantilever action. The rectangular sections are 10½ ft wide by 28 ft long, tapering in four planes from a 4-in. peripheral thickness to 11 in. at the centrally located column supports.

Ramp slabs are 1½ times the width of typical floor panels. Joined in pairs, two ramp slabs comprise a complete ramp connecting two levels. Each ramp slab has two supporting columns. The low floor-to-floor height, made possible by the elimination of beams and girders from the floor framing, limits the ramp grade to 12.5%.

One-way traffic through the building will allow driver parking at an angle.

Other advantages of Tierpark are easy addition and easy dismantling. This feature adapts Tierpark to projects where temporary parking demand is high and future demand doubtful.

WEDNESDAY: With their cars already on top, workers place the last few sections.

Engineers, Contractor Tied to 'Payola'

A payola scandal in Florida has swept eight road engineers out of their jobs and disqualified one of the largest roadbuilders in the Southeast from bidding on highway work in the state.

The eight engineers admitted at legislative hearings last week that they had accepted from $650 to $2,150 each over the past two years from Cone Brothers Contracting Co. of Tampa. In recent years the firm has won some 60 Florida road contracts totaling $28.5 million.

The state employees, who have occupied positions as project engineer, resident engineer and assistant district engineer for construction, said they received regular remittances of $25 per week in plain envelopes, but some of the money was wrapped in paper bearing the Cone Brothers letterhead. All of them said they had never made any concessions for any contractors nor had they ever been asked to relax regulations.

Representatives of the contractor declined to testify or comment to the press. There is a possibility they may be cited for contempt or otherwise forced to testify.

Among the interested spectators at the hearings were two investigators from Rep. John A. Blatnik's House subcommittee on roads.

Several of the engineers involved supervised inspection for projects using federal funds.

The Blatnik committee will probably put the Florida "payola" scandals on a national stage when Congress convenes in January.

Meanwhile, the Bureau of Public Roads is making its own investigation. Pending completion, it has frozen all payments of federal funds on projects completed by the Cone firm.

Florida Governor Leroy Collins reacted to the revelations with a statement demanding criminal prosecution of persons involved. The governor called the whole business "shocking, revolting and sickening." He said he was shocked that an "outstanding, apparently reputable contracting company would be a party to any such conduct as this."

A bill that would have banned gifts to state officials and employees was recommended by the governor last year, but died in the legislature.

The State Road Board has now adopted a blanket ban on employees accepting any gift or gratuity from contractors or others doing business with the State Road Department.

The dismissed engineers are E. A. Thompson of Bartow, E. R. Davis of Clearwater, Frank Britt of Safety Harbor, S. F. Allred of St. Petersburg, M. L. Kimble of Safety Harbor, William McLeod of Odessa, R. B. Downey of Wauchula, and William Hazelief of Tampa.

Around the World . . .

• **Stacking the traffic**—California Department of Public Works has awarded a $3.37-million contract to Charles L. Harney, Inc. of San Francisco for reconstruction of the Yerba Buena Island tunnel portion of the San Francisco Oakland Bay Bridge. The contract is part of a major project to provide five lanes of one-way traffic on each deck of the bridge.

• **New code for Keys**—Hurricane Donna's aftermath convinced the Monroe County (Florida Keys) Commission that stricter building regulations are required. The commissioners have voted to adopt the South Florida Building Code.

• **Bostonians abroad**—Camp, Dresser & McKee, Boston consulting engineers, in a joint venture with Compania de Ingenieria Sanitaria, consulting engineers of Bogota, Columbia, will prepare a master plan for sewage disposal and storm drainage for Bogota.

• **A world-wide problem**—The institute of Traffic Engineers has announced a World Traffic Engineering Conference to be held in Washington in August, 1961. Traffic experts from many nations—including the USSR—are expected to attend.

• **Pay up or stop work**—Invoking an unused law passed in 1944, the Virginia Employment Commission has filed a suit against a contractor asking for an injunction to prevent him from doing business unless he pays up his delinquent employment taxes.

• **Generator bids coming**—The Tennessee Valley Authority is taking bids November 15 on two 800,000 kw steam-turbine generators—the world's largest (ENR Sept. 1, p. 17). One of these must be ready to operate within four years. Site of the plant has not been announced, but TVA has taken an option on 60,000 acres of coal land in Kentucky as a possible fuel source.

• **Skyscraper for Dallas**—Tishman Realty & Construction Co., New York City, will build a 25-story, twin-tower apartment building in Dallas. Designers are Victor Gruen Associates, Los Angeles.

• **A lot of fixing**—California will have to improve 100,000 miles of county roads and city streets during the next 20 years, according to a report submitted to two committees of the state legislature. Total cost is estimated at $12.75 billion.

• **Alcoa boosts outlays**—Aluminum Co. of America will have spent $85 million by year-end on capital improvements. This will compare with outlays of $55 million last year. Outlays in 1961 are expected to match this year's spending.

• **Driver-proof meters** – Rochester, N. Y., has installed experimental parking meters designed to survive accidental and deliberate bumps from automobiles. A strong spring under the sidewalk snaps one model back into position. Another meter is set in a ball joint and has to be righted manually.

Official Pleads Not Guilty To Conflict of Interest

The former chairman of Boston's Metropolitan District Commission pleaded not guilty last week to 16 indictments charging him with insurance deals that violated state "conflict of interest law."

John E. Maloney, who resigned as commission chairman on the last day of hearings by a State Senate investigating committee, is charged with inducing contractors to place performance bonds with an insurance company in which he held a 40% interest.

Late last week another MDC commissioner and a Belmont, Mass., contractor were indicted on charges of conspiracy to violate the conflict of interest law. In committee hearings Associate Commissioner Charles J. McCarty testified he sold a franchise for concrete guard rails for highways to contractor John F. Kennedy before assuming office. The franchise was nontransferrable, according to committee counsel.

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This new catalog has been prepared especially for the use of engineers and contractors who are, or may be, engaged on projects where ground water is a problem.

It illustrates and outlines representative jobs of all types where difficult dewatering problems have been successfully handled. It shows and briefly describes basic Moretrench Wellpoint equipment.

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Solar Screen Made of Molded Concrete Block

A circular structure housing the new offices of a Miami law firm is clad in a solar screen of molded concrete block.

The structure is four stories high, with floors 10 ft apart, and 80 ft in diameter. All but the rear service wing is covered by the molded blocks. Behind the screen is a concrete block wall pierced by aluminum double-hung windows and sliding glass doors.

Since the screen limits the view from inside, offices within the building face on a 30-ft-dia interior landscaped court. The court is covered by a glass-fiber and concrete dome and is open at the sides. The interior view more than compensates for the limited view outside the building—mostly motels and small apartment and office buildings. High rise apartments will soon obscure the one view of the bay.

The structural framing consists of steel columns and precast concrete floor joists covered by a 2-in. cast-in-place concrete slab. The ground floor is not enclosed. This permits an undercover car approach and access to a parking area in the rear.

Polevitsky, Johnson & Associates were the architects. H. R. Ross Associates were the structural engineers. M. R. Harrision Construction Corp. was the general contractor. The solar screen was made by Dunan Brick Co. All are Miami firms. Cost of the building was $500,000.

Safety Talk—Cheap but Valuable

When it comes to safety, talk is cheap—but valuable, nevertheless. Talk, as a matter of fact, remains one of the most important anti-accident weapons. That point was stressed again last week at the National Safety Council's Construction Section meeting in Chicago.

Safety must be talked about at all levels until foremen, superintendents and safety engineers have drummed into workmen the absolute necessity of good safety practices on the job site.

Based on 1959 figures, construction continues to be the fourth most hazardous industry in frequency of disabling injuries per million manhours of labor. It is topped by the lumber industry, coal mining and marine transportation.

Construction in '59 had an accident frequency rate (the number of disabling injuries per one million manhours) of 18.78 and a severity rate (days lost per one million manhours) of 2,249. The year before the frequency rate was 16.99, but the severity rate was 2,538.

Two speakers at the conference took a detailed and critical look at one danger area on construction sites—tubular scaffolding and other slender steel structural frames, such as material hoists, masts, booms and derricks.

Richard N. Vandekieft, vice president, Safeway Steel Products, Inc., stressed that tubular scaffolding used for shoring under heavy loads must be properly erected. Tables giving load-carrying capacities are usually available from the manufacturer, but erection crews must see that the scaffold is set plumb and square, and on firm footings.

The majority of fatal accidents in construction is due to faulty structural design in the temporary structures, according to Mr. Vandekieft.

More thorough investigation and reporting on the cause of failure in slender structural sections is required to assist in eliminating potential weaknesses in temporary falsework, said C. W. Borden, Jr., director of safety engineering, Johnson, Drake & Piper, Inc.

As a step in this direction, manufacturers and distributors have formed the Steel Scaffolding and Shoring Institute. It will promote safer use of steel scaffolding.

Road Lighting—for Safety's Sake

For safety's sake more and better illumination is needed for nighttime driving on our streets and highways. This theme was expounded at a street and highway lighting conference in Chicago last week.

Good roadway lighting reduces traffic accidents. Unfortunately, however, many public officials have yet to be convinced of the value of adequate lighting, according to Warren H. Edman, vice president in charge of street lighting, Holophane Co.

Even if we lighted our highways to intensity levels 50% higher than recommended by the present "American Standard Practice for Roadway Lighting," said Mr. Edman, we would still be conservative.

The seven-year-old standard of practice is being revised and updated to meet present and future needs. Lighting requirements of the expanded federal highway program have emphasized the need for expansion and clarification of current lighting standards.

Research in adequate highway lighting includes: geometry of the lighting system (whether the lights are opposite each other, staggered, or on only one side of the street or highway); type of pavement, whether bituminous or portland cement concrete; type of system (filament, mercury, or fluorescent); and spacing, light distribution, illumination level and observer-target distance.

W. W. Sproul, Jr., vice president, Westinghouse Electric Corp., said only 10% of our main and arterial traffic thoroughfares are adequately lighted; only 2% of our business streets and 0.1% of our residential streets have adequate lighting. He sees great public demand for better street lighting.

The conference was co-sponsored by ELECTRICAL WORLD—a McGraw-Hill publication; the National Electric Manufacturers Association; and the Edison Electric Institute.

Another Motor Hotel Slated For Midtown Manhattan

An 18-story motor hotel with 556 rooms will go up in midtown Manhattan. Guidera & Goodman, Inc., owner-builder from Englewood, N. J., hopes to start building the $9.5-million reinforced-concrete structure in mid 1961.

A three-level garage (two below grade) will provide space for 350 cars. Other features include a convention hall seating 700 and a swimming pool.

Exposed white concrete columns will frame blue sculptured ceramic tile spandrels, giving the walls a blue and white grid appearance.

Max M. Simon is architect; Greenhut & Taffel are structural engineers. Both are New York City firms.

Manhattan's first motor hotel, Skyline Motel, was completed last year. Several others are either planned or under construction.

Through the present he sees the future . . .

Intent, this Gardner-Denver Construction Specialist watches Gardner-Denver equipment at work on a customer's job. Yet, even as he watches, his mind races ahead to the future—exploring new ways to do the work even better, more quickly, at lower cost.

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Facts on Ryerson post-tensioning for

A service that features simplicity and reliability ...assures lower cost per pound of steel

Prestressed concrete has literally exploded onto the construction scene in the past few years—and has established itself as a vital factor in the building industry.

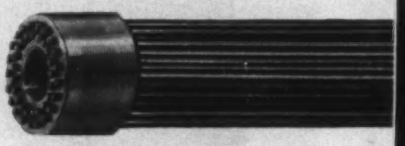
Setting the pace, Ryerson's complete post-tensioning service brings new and dramatic possibilities to the field of reinforced concrete construction. Offering both lower cost and greater versatility, this service makes prestressing really practical for designers and contractors alike.

Today Ryerson post-tensioning service, using the time-proved BBRV method, is playing an important role in more and more big construction projects from coast to coast.

This unique Ryerson service covers prestressed concrete application completely, from adaption of the engineers' design through the final stages of field erection. At every step Ryerson experience is available to overcome doubt and unfamiliarity . . . Ryerson materials and equipment are available to make new techniques safe and reliable . . . Ryerson know-how is available to help get the job done. And it's all wrapped up in a complete, single-price, post-tensioning service. See details on the opposite page.

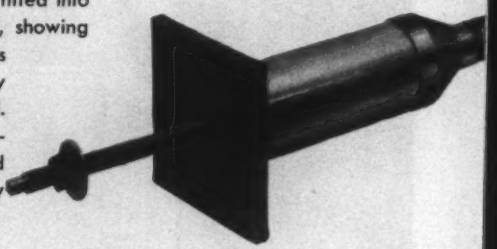
Following are some of the highlights of Ryerson post-tensioning service, showing how it offers new design freedom and economy—saving time and cutting costs. For further information on post-tensioning and the rest of Ryerson's complete service to the construction industry, call your Ryerson representative.

MOVABLE ANCHOR HEAD



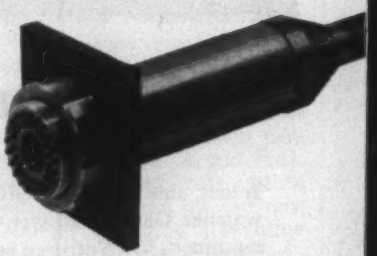
Made of high-grade steel with exterior threads for lock nut and interior threads for pull rod. Steel wires of exact length are inserted through the holes in anchor head and retained by cold formed button heads.

MOVABLE ANCHOR HEAD ASSEMBLY BEFORE STRESSING



. . . with wire bundle fitted into trumpet and conduit, showing the device which is used to temporarily hold the anchor head. Threaded bar on holding device can be used to secure the assembly to the formwork.

MOVABLE ANCHOR HEAD ASSEMBLY AFTER STRESSING



The movable anchor head is positively held in its final position by means of a lock nut screwed against the bearing plate. The center hole, after removal of the pull rod, is used as the grout inlet.

STRESSING DATA

(according to the Bureau of Public Roads)

Number of Wires (diam.)	1—¼"	12—¼"	24—¼"	40—¼"
Section of Wires (sq. in.)	.04909	0.589	1.178	1.963
Final Force—after losses (lb.)	7,070	85,000	170,000	283,000
Initial Force—before losses (lb.)	8,250	99,000	198,000	330,000
Overstressing Force (lb.)	9,420	113,000	226,000	377,000
Ultimate Force of Tendon (lb.)	11,780	141,380	282,760	471,260

PRESTRESSED CONCRETE

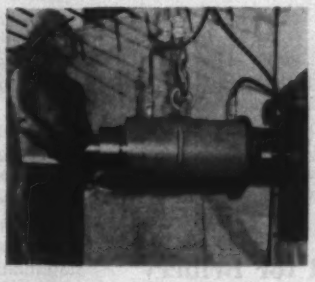
COVERS EVERY OPERATION

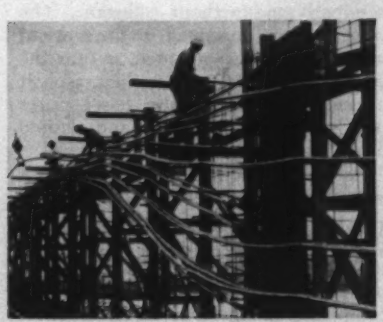
1. Force development calculations—from the design engineers' basic data Ryerson furnishes the necessary computation verifying that forces developed by our system meet all requirements of your plans and specifications.

2. Detailing and placement plans—Ryerson prepares detailed placing drawings for the tendons, grout connections, grout vent pipes, anchorages, and other components. All units are clearly tagged and identified in accordance with these drawings.

3. Quality-controlled tendon and anchorage assembly—all units are fabricated under carefully controlled conditions. We can furnish test reports on every heat of wire used in the tendon. In every processing step we maintain close quality controls that assure compliance with all your specifications.

4. Equipment for precise stressing and positive grouting—we furnish all equipment, including easily operated jacks, precise instruments for measuring stress and elongation, hydraulic pumps, drop mixers, etc.





5. Field labor procedures—experienced Ryerson personnel assist in the supervision of every step of the post-tensioning operation, from accurate placement of tendons through precision stressing and anchoring to final positive grouting.

6. Dependably scheduled deliveries—Ryerson's nationwide distribution facilities give unequaled convenience and flexibility. Materials and equipment arrive at construction site in accordance with job progress.

RECENT CONSTRUCTION PROJECTS USING RYERSON POST-TENSIONING

WANAPUM DAM DEVELOPMENT, EPHRATA, WASHINGTON
BUILDER—Public Utility District of Grant County, Washington
ENGINEER—Harza Engineering Co., Chicago
CONTRACTOR—Grant County Constructors

UNITED AIR LINES EXECUTIVE OFFICE AND TRAINING CENTER, CHICAGO
ARCHITECT—Skidmore, Owings & Merrill
CONTRACTOR—Gust K. Newberg Construction Co.

ONEIDA LAKE BRIDGE
BUILDER—State of New York, Dept. of Public Works
ENGINEER—Summers, Munninger and Molke
CONTRACTOR—Terry Contracting, Inc.

CHICAGO EXPOSITION CENTER
BUILDER—City of Chicago
CHIEF ARCHITECT—Alfred Shaw
STRUCTURAL ENGINEER—Carl Metz
CONTRACTOR—Gust K. Newberg Construction Co.

NAVAL AIR STATION TAXIWAY, LEMOORE, CALIFORNIA
BUILDER AND ENGINEER—U. S. Navy
CONTRACTOR—Griffith Company

NORTHWEST EXPRESSWAY OVERPASS, CHICAGO
BUILDER AND ENGINEER—Cook County (Illinois) Highway Dept.
CONTRACTOR—Thomas McQueen Co.

LAKE MEADOWS SKATING RINK, CHICAGO
BUILDER—New York Life Insurance Co.
ARCHITECT AND ENGINEER—Skidmore, Owings & Merrill
CONTRACTOR—Turner Construction Co.

GEORGE WASHINGTON BRIDGE APPROACHES, NEW YORK CITY
BUILDER AND ENGINEER—Port of New York Authority
GENERAL CONTRACTORS—Gull Contracting, Inc.; Johnson, Drake & Piper
SUB-CONTRACTOR—Precrete, Inc.

MISSION VALLEY FREEWAY BRIDGES AND PRESIDIO PARK OVERPASS, SAN DIEGO
BUILDER AND ENGINEER—State of California, Dept. of Public Works, Div. of Highways
CONTRACTOR—W. F. Maxwell Co.

SANTA MONICA AND SANTA ANA FREEWAYS INTERCHANGE
BUILDER AND ENGINEER—State of California, Dept. of Public Works, Div. of Highways
CONTRACTOR—Peter Kiewit Sons Co.

CENTURY 21 COLISEUM, SEATTLE
BUILDER—State of Washington, Dept. of Commerce & Economic Development
ARCHITECT—Paul Thiry, Seattle
CONTRACTOR—Howard S. Wright Construction Co., Seattle

LEHIGH PORTLAND CEMENT STORAGE BUILDING, MITCHELL, INDIANA
ENGINEER AND CONSTRUCTOR—Fruin-Colnon Contracting Co.

MULTI-LEVEL PARKING DECK, HAMMOND, INDIANA
BUILDER—Triangle Parking Corp., Hammond
ENGINEER—DeLeuw, Cather & Co., Chicago
CONTRACTOR—Roy C. Clark, Inc., East Chicago, Indiana

ROOF STRUCTURES, CONEY ISLAND POLLUTION CONTROL PROJECT
BUILDER—City of New York, Dept. of Public Works
ENGINEER—Greeley & Hansen, Chicago
Consultant—Frank Klein, Chicago
CONTRACTOR—Lasker-Goldman Corp., New York City

GRINNELL COLLEGE FINE ARTS CENTER, GRINNELL, IOWA
ARCHITECT—Skidmore, Owings & Merrill
CONTRACTOR—The Weitz Company, Inc., Des Moines

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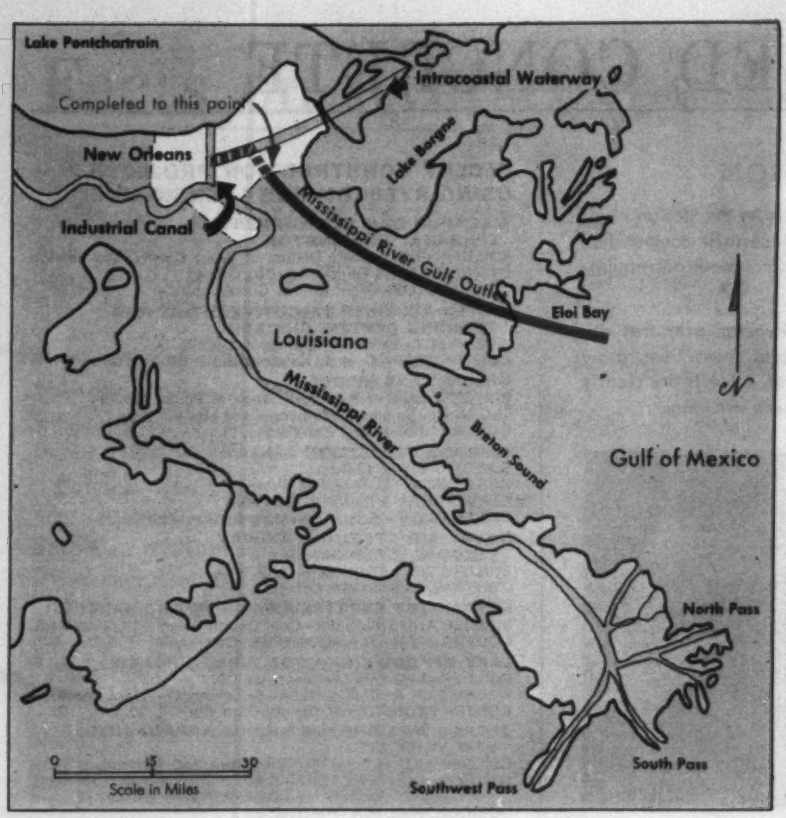


Gulf Outlet will be 70 miles long, cost $110 million.

New Orleans Marches to the Sea

Completion of a $1.5-million bulk materials terminal and the award of a $1.4-million dredging contract last week marked the latest stages of progress on the $110-million Mississippi River Gulf Outlet.

The outlet will offer a 500-ft-wide, 36-ft-deep, 70-mile ship route between New Orleans and the gulf of Mexico (ENR Apr. 12, 1956, p. 25). It will provide a faster, safer alternative to the tortuous 110-mile Mississippi River route to the Gulf.

The outlet will connect with the Mississippi at New Orleans through the city's Industrial Canal at its junction with the Intracoastal Waterway (see map). The outlet will follow an enlarged section of the Intracoastal Waterway for its first four miles and then go southeast on its own, to emerge in Breton Sound in the neighborhood of the Chandeleur Islands.

The New Orleans end of the channel is complete to the St. Bernard Parish (county) line, about 5½ miles, at full project depth of 36 ft. and bottom width of 500 ft. Beyond this point the channel is being dredged to a 250-ft width. This will make it navigable to ocean-going vessels by 1963.

The first installation on the Mississippi River Gulf Outlet is a terminal designed to store and transfer such bulk cargoes as iron ore, phosphate rock, manganese, chrome and bauxite. It was erected 1½ miles east of the Industrial Canal.

Williams-McWilliams Industries, Inc., of New Orleans, won a recent dredging contract for a 37,100-ft interim channel from Bayou Dupre to Bayou Yscloskey.

MC&S Fined for Bribery On Priest Rapids Job

Merritt-Chapman & Scott Corp. of New York City was fined $10,000 on each of six bribery counts. The contractor pleaded "no contest" to charges it had attempted to influence a former Grant County Public Utility District manager in connection with construction of Priest Rapids Dam in Washington.

The fines were suspended with the proviso that MC&S pay $50,000 for the costs incurred by the Grant County grand jury during its investigation.

The six counts involved $343. Three other counts involving alleged gifts of $7,248 were dismissed on recommendation of the prosecuting attorney.

Fix for Price-Fix

Asphalt firms ordered to stop fixing prices

A federal judge has ordered 10 asphalt companies to stop fixing prices in selling asphalt to New England states and cities. Local governments are now suing to collect damages suffered as result of the alleged price fixing.

The Justice Department had charged the companies with antitrust law violations in the sale of about $10 million worth of asphalt a year as well as road tar and bituminous concrete used for road paving. The road tar and bituminous concrete cases still remain to be heard.

District Court Judge Charles E. Wyzanski, Jr., after a short trial in Boston, enjoined Allied Chemical Corp. and Koppers Co., Inc., from entering into any agreement to fix prices for asphalt.

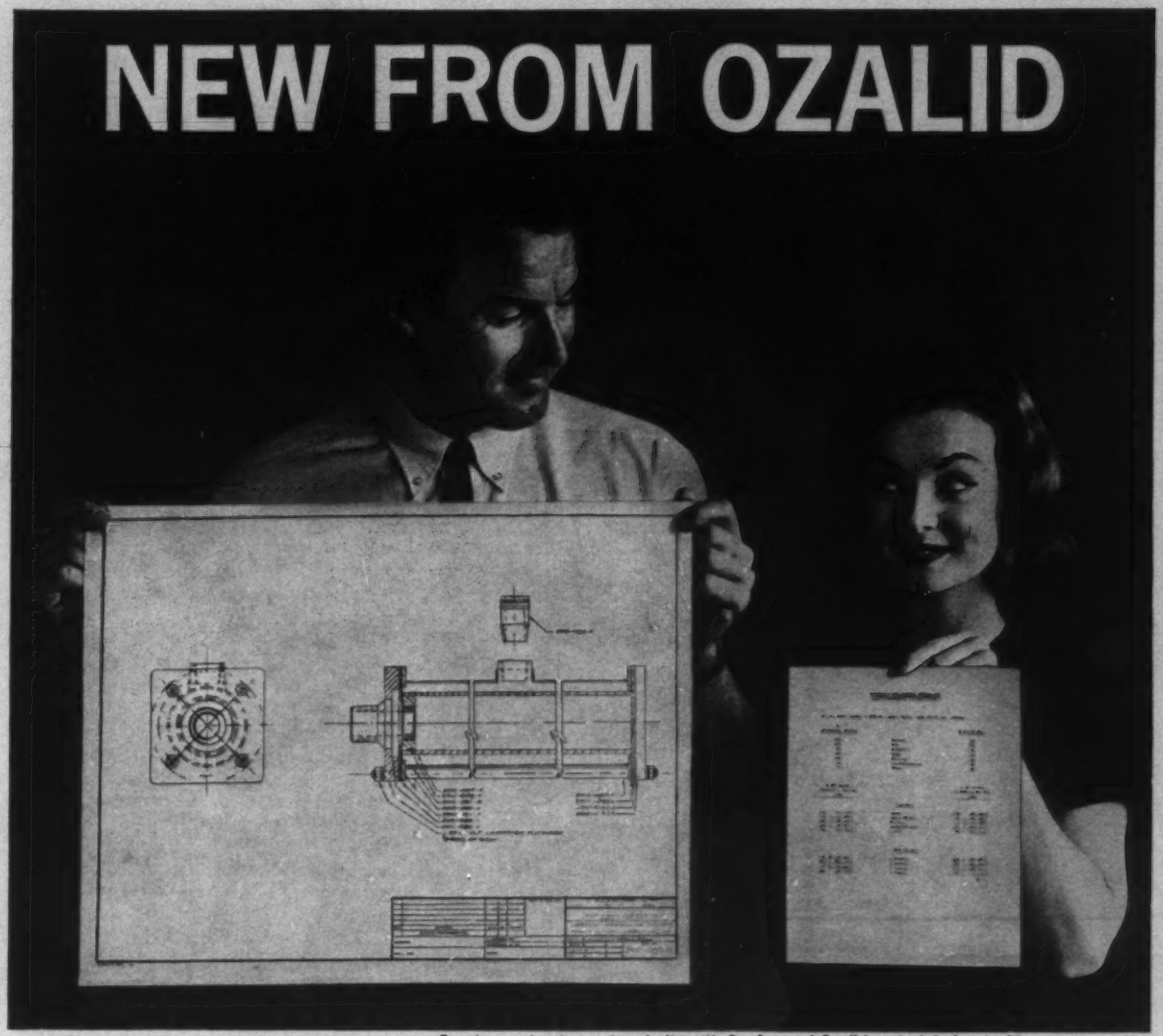
A similar consent order was entered earlier by Judge Wyzanski without a trial against the eight other companies. They are: Trimount Bituminous Products Co., Everett, Mass.; Lake Asphalt and Petroleum Co. of Massachusetts, East Deerfield; H. H. McGuire & Co., Inc., Malden, Mass.; American Oil Products Co., Somerville, Mass.; Rock-Asphalt Corp., Haverhill, Mass.; D. J. Cronin Asphalt, Inc., East Providence, R. I.; Mystic Bituminous Products Co., Everett, Mass.; and Wachusett Bituminous Co., Worcester, Mass.

Allied and Koppers originally refused to accept the government's consent judgment and requested that the case go to trial. However, Judge Wyzanski suspended the trial after only two government witnesses were heard, and the two companies accepted Judge Wyzanski's judgment against them.

Under terms of the decree, the companies are required during the next five years, when submitting a bid to any governmental body, to include a sworn statement that bids were arrived at independently and without collusion. The eight companies named in the consent judgment are also required, within the next 60 days, to review their asphalt prices and independently re-set prices based on their own costs and desired profit margin.

As a result of the government's suit against the asphalt companies 52 cities and towns in Massachusetts, including Boston, have filed antitrust suits in Boston Federal Court against all 10 companies asking treble damages. These complaints charge that excessive prices were paid for asphalt as a result of the alleged price-fixing conspiracy. Determination of any damages will have to be made by Judge Wyzanski in a further hearing.

NEW FROM OZALID



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Columns and girders are connected with high-strength bolts.

With exterior columns outside

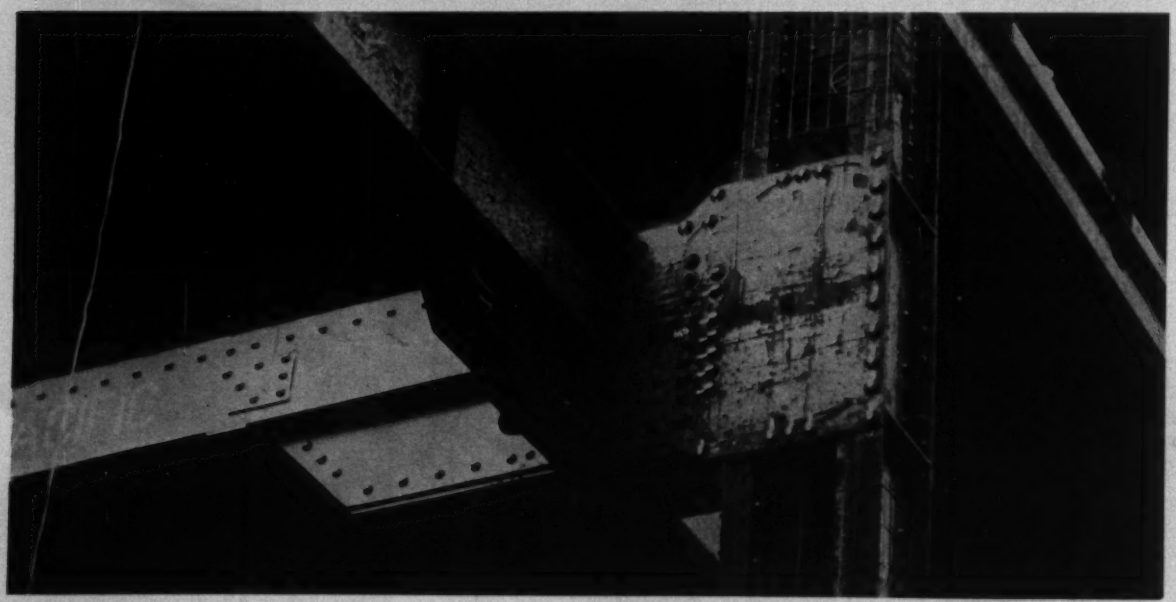
Deep Box

San Francisco's newest office building—a guinea pig for seismic research—features exterior columns completely outside the building walls. It's the West Coast headquarters for Bethlehem Steel Co., 250x86 ft in plan and 15 stories high.

Separating columns from the building exterior eliminates interior obstructions that might complicate floor arrangements. And, according to architect Welton Becket, "The free-standing members give the appearance of steel columns rising to the sky, which is entirely appropriate for a steel company headquarters building." Actually, the steel columns are encased in fireproofing and covered with granite and marble. But they do in fact give the impression of steel shafts.

The location of the columns, however, complicates structural connections. For example, the spandrel girders are 2 ft 8 in. inside the column centerline. And, since lateral forces induced by wind or earthquake are entirely taken by the moment-resisting steel frame, provision had to be made for carrying forces from the spandrel girders, as well as from the transverse girders to the columns.

This was done by making the transverse girders framing into the columns a deep box section. The "torque box" thus formed resists the torsion induced



Connections are complicated by offset between spandrel girder and column.

Section Solves Connection Problem

into the frame by the offset between column and spandrel girder.

A typical column is a 14-in., 426-lb beam. Its outside flange is stiffened by an 18-in., 58-lb channel, and the inside flange by a 17½x1⅛-in. plate.

The steel box girder framing into the column is haunched to a 3-ft depth there. Elsewhere, its depth is 1 ft 8 in. Its web plates are ⅜ in. thick. The top cover plate, 17x⅜ in., is riveted to angles riveted to the web plates. The haunch has a bottom cover plate of similar size. The rest of the box girder has lacing bars on the bottom.

Each spandrel beam is a 24-in., 94-lb, wide-flange member deepened near the column by adding a 16-in. WF section to it.

The spandrel beam and box girder are attached to the column with heavy gusset plates. Shop connections are riveted and field connections make use of high-strength bolts.

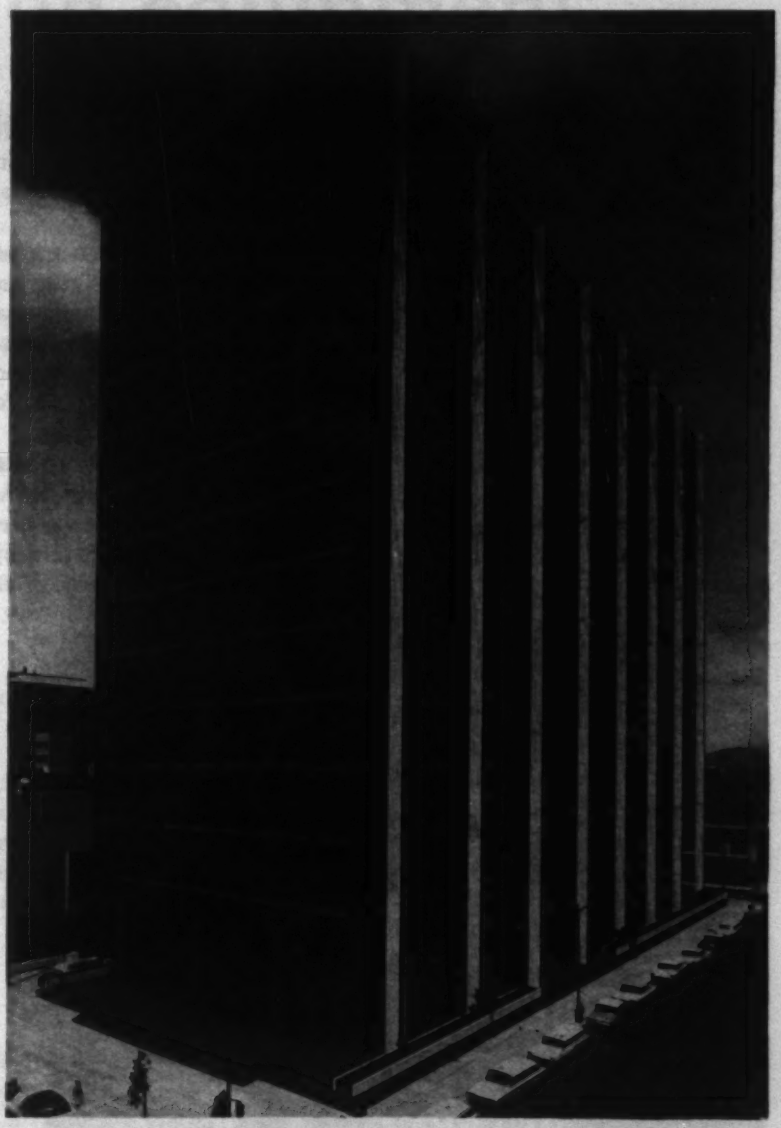
• **Earthquake gages**—Because Bethlehem Steel Co. is interested in research to promote more and better use of steel, the building is extensively instrumented to record the building's response to earthquakes and heavy winds.

A pair of U.S. Coast and Geodetic Survey accelerometers have been installed, one in the basement and the other on the 12th floor. And six interstory displacement gages are in place, four measuring displacements between the 12th and 13th floors and two between the 6th and 7th floors.

The accelerometers are primarily for earthquake research purposes. They are part of the USC&GS strong-motion recording system in San Francisco. Four other such installations are already in place in other structures, but this is the first installation in a modern steel framed building.

The story displacement gages were designed jointly by John A. Blume & Associates, structural engineers for the project, and Bethlehem engineers. They record the maximum horizontal displacement of a story with respect to the one below. Four of these gages were placed at the same floor as one of accelerometers. Two gages were installed in midheight of the building.

Displacement gages record by one of two systems, depending upon the clearance available. The first is a diagonal angle recorder that measures the change in diagonal length in any particular panel during lateral building movement. This type could only be used behind the elevator, where an unobstructed opening was not required.



Outside columns look like steel, but steel is cased in marble.

The second type is a "floating beam" arrangement, designed for use where free floor area, column to column, was required. Both methods utilize a pivot system to magnify the actual motion. The recording is accomplished by a spring-loaded scribe on a piece of carbon-backed recording paper.

In addition to the permanent installations, field measurements of the natural periods of vibration of the building were made during construction. Both a portable seismograph and vibration meters were used.

Working with Welton Becket & Associates were architects Hayes & Little and John A. Blume & Associates, structural engineers. Bethlehem Steel Co. erected the structural steel. Swinerton & Walberg Co. were the general contractors.

DOUBLE GRAY-X® gives you on your

Today, more and more contractors are specifying CF&I-Wickwire's Double Gray-X to replace worn out wire ropes on their equipment. The reason is simple: Double Gray-X has a longer life expectancy than ordinary wire ropes.

Wickwire's new wire drawing technique, which includes the use of molybdenum disulphide, assures a longer-lasting wire rope. And Double Gray-X is made from *Extra* Improved Plow Steel which gives it *extra* high breaking strength. Double Gray-X has:

MOLECULAR SHIELD—The use of molybdenum disulphide in the wire drawing results in a shield several molecules thick which lubricates the individual wires and prevents them from grinding against each other when the rope operates. Less internal friction means more rope life.

SMOOTHER WIRE SURFACE—Before Double Gray-X, the most carefully drawn rope wire contained minute surface imperfections. Wickwire's new wire drawing technique improves the surface finish. Smooth surfaced wires provide better resistance to fatigue.

EXTRA TOUGHNESS—Molybdenum disulphide lubricates the wires during the drawing process. Less power is required and less heat is generated during this operation. The original inherent toughness of the wires is better preserved.

longer rope life construction equipment

Specific uses of Double Gray-X on construction jobs

Wickwire's Double Gray-X has superior quality which has actually been proven *in the field.* Because it lasts so long — even under the most rigorous conditions — Double Gray-X slashes downtime to a minimum.. . . keeps your equipment on the move. Double Gray-X is particularly recommended for:

BULLDOZERS: Blade control ropes are subjected to heavy punishment; abrasion and bending fatigue are severe because the rope must change position many times in a short period. Double Gray-X has the "reserve strength" to stand up under this treatment and will keep your dozers working extra hours on every job.

CF&I-Wickwire Recommendation (blade control ropes): 6x25 FW, Wisscolay, Double Gray-X, Lang Lay, IWRC.

SHOVELS: Tension and bending fatigue are the enemies of wire ropes used as hoist lines on power shovels. Double Gray-X's extra-high breaking strength helps alleviate these abuses — an important safety factor to consider when replacing your present hoist lines.

CF&I-Wickwire Recommendations (hoist lines): up through ⅝" — 6x25 FW, Wisscolay, Double Gray-X, Regular Lay, IWRC

¾" through 1⅛" — 6x25 FW, Wisscolay, Double Gray-X, Lang Lay, IWRC

1¼" and larger — 6x41 FW, Wisscolay, Double Gray-X, Lang Lay, IWRC.

DRAG LINE EXCAVATORS: Drag lines are called on to operate in the toughest possible conditions and are constantly subjected to abrasion and tension. The higher abrasion resistance and extra strength of the wire in Double Gray-X make it particularly suited to withstand these destructive factors.

CF&I-Wickwire Recommendations (drag lines): up through ¾" — 6x19 Seale, Wisscolay, Double Gray-X, Lang Lay, IWRC

⅞" through 1⅜" — 6x21 FW, Wisscolay, Double Gray-X, Lang Lay, IWRC

1¾" and larger — 6x25 FW, Wisscolay, Double Gray-X, Lang Lay, IWRC.

Double Gray-X is made in many different sizes and constructions. To reduce your operating costs, you should insist on Double Gray-X. For complete information and prompt delivery, contact the nearest CF&I sales office or your Wickwire rope distributor. 7932

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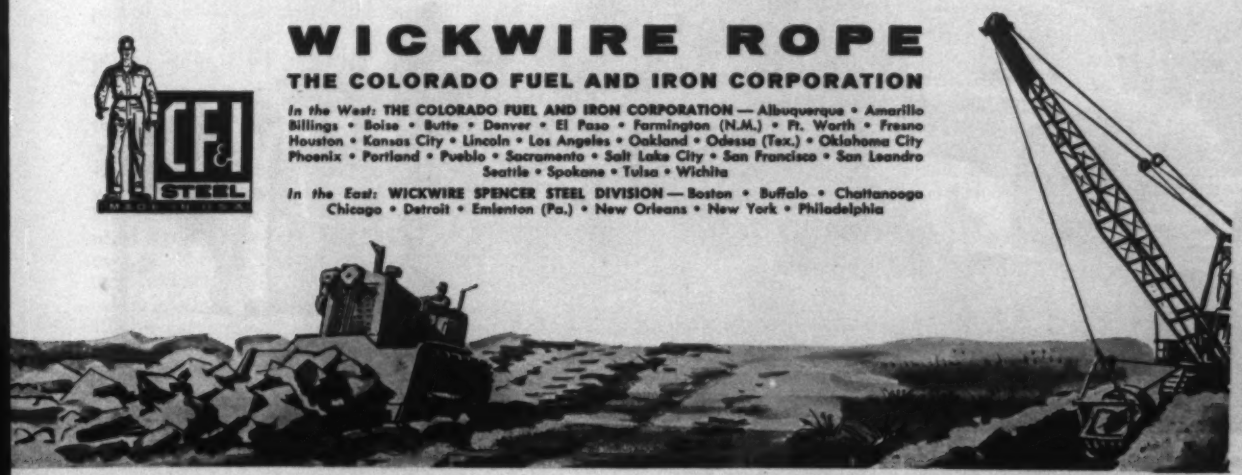


Designers aimed high on this stretch of Interstate.

How Ohio

Nearly 22 miles of four-lane asphaltic concrete pavement constructed for Interstate Highway 71 north of Columbus, Ohio, may set a pattern for other bituminous pavements in the Buckeye State.

Design standards and construction requirements were so high that the 24-ft-wide pavements should be free from major maintenance for several years, according to one Department of Highways' bituminous engineer.

Engineers check-rolled subgrades with super-compactors and the contractor compacted subbases to unusual densities. Base courses were keyed tight under heavy rolling. And roadway surfaces were finished to close tolerances for crown and profile.

Contractor ingenuity solved such problems as spreading damp "fines" at a faster rate, and laying hot-mix asphaltic concrete at a fast clip.

The highway section was built under four contracts: two to John R. Jurgensen Co. for 11.2 miles at a total cost of $4.9 million; one to Red Eagle Corp. for 6.2 miles at $3.2 million; and one to Rhoten Construction Co. for 4.4 miles at $2.1 million.

Design engineers specified 24½-in. total thickness of flexible pavement from subgrade to finished surface. This included:

- A 9-in. granular subbase placed directly on the compacted subgrade.
- An 8-in. waterbound macadam base course.
- A 3-in. waterproofed aggregate base course (plant mixed) on Jurgensen's

Inside shoulders are 5-ft-wide bituminous macadam or waterproofed aggregate.

Built Its Best Bituminous Pavement

contracts, and a 3-in. bituminous penetration macadam base course on the other two.

- A 2¾-in. asphaltic concrete base course.
- A 1¼-in. asphaltic concrete surface course.

Roadway pavements are separated by a 74-ft depressed median. They have 10-ft shoulders outside and 5-ft shoulders inside. Shoulders are 5 in. of stabilized crushed aggregate on a variable thickness (3 to 8 in.) of granular subbase. They are topped with 3 in. of waterproofed aggregate on Jurgensen's contracts, and 3 in. of bituminous macadam on the other two contracts. Two bituminous seal coats covered with a layer of white limestone chips complete the shoulders.

Continuous porous backfilled underdrains are located beneath the shoulders 2 ft outside of the roadway pavement. The 18-in.-wide trenches, filled with fine crushed stone, have 6-in. extra quality drain tile at the bottom.

From a construction standpoint, the roadbuilders took many precautions to assure a satisfactory job. Before finegrading the compacted earth subgrade to receive the subbase, the subgrade was check-rolled with a 50-ton rubber-tired roller. The pressure was very high, 150 psi.

Subgrade areas that experienced objectionable deflection under proof rolling were undercut to the depth required to remove the unstable material. Selected material was placed and compacted to fill the undercut areas. Such areas were again check-rolled with the 50-ton rubber-tired roller.

The contractor placed the 9-in. graded gravel subbase in two courses, 5-in. and 4-in. It contains 3-in. maximum size particles with not over 10% passing a 200-mesh sieve. The material was hauled in end-dump trucks and placed with a self-propelled spreader box.

Workmen added water, or permitted the material to dry out if necessary, to secure optimum moisture content. Each layer was compacted until there was no further gain in density. Very high densities were obtained. Field engineers attribute the high densities to the use of 30-ton rubber-tired rollers in conjunction with heavy steel-wheel rollers. Wheel loads of 8,000 lb with 120-psi tire pressures, were maintained on the rubber-tired rollers. Optimum moisture content of the subbase material was about 7%.

The 8-in. waterbound macadam base course contains 3-in. maximum size crushed limestone. Workmen spread the graded material full depth with a stone spreader on a 1-in.-thick inverted choke of limestone "fines" applied to the subbase.

Crushed stone base course goes full 8-in. depth to template.

After workmen had checked and adjusted the thickness and grade of the waterbound macadam base course material, it was keyed together by steel-wheel rollers, 30-ton rubber-tired rollers, and vibratory compactors.

Specifications required a minimum of six hours of continuous rolling per 1,000 sq yd of the waterbound macadam. But to get the desired degree of keying the minimum rolling time had to be almost doubled.

After the crushed limestone had been adequately keyed, workmen added limestone screenings in three passes and worked them into the base course, using vibratory compactors and rollers equipped with broom drags.

About 24 tons of screening were required per 100 tons of course aggregate for a completely filled course. About 50% of the choke material was applied in the first pass and 25% in each of the other two passes. Water was then applied in multiple passes, totaling 5 to 7 gal per sq yd of base course.

Steel-wheel and rubber-tired rollers followed close behind the water tanks during all applications. Broom drags mounted at the rear of the steel rollers disclosed areas of insufficient fines.

The workmen spread additional fines over these insufficient areas by hand.

Limestone screenings coming from stockpiles were damp. After being spread on the keyed base course, the screenings were allowed to stand until the particles were surface dry. Then they were worked into the layer of coarse aggregate. Spreading the limestone screenings was a knotty problem for the contractor.

By the conventional method, three workmen were required for each of two spreader boxes to keep the damp choke material spread evenly over the keyed base course. Two men with shovels kept the material flowing from the end-dump-trucks into the spreader box. The third man walked along behind the spreader, pounding it with a sledge hammer in order to keep the material flowing freely.

To speed up the job and reduce the cost of applying the fines, the Jurgensen Co. bought an agricultural limestone spreader pulled behind a conventional two-axle truck for about $12,000. With this rig he spread up to 670 tons of choke material in 10 hours and saved up to an estimated $300 per day compared to the other method.

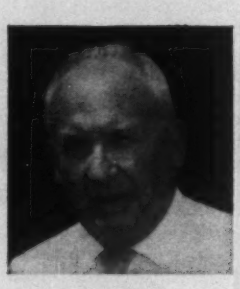
The front end of the V-shaped spreader is mounted above the rear axle of the truck. The rear end is carried on a four-wheel single axle. The spreader holds 18 tons of choke material, which can be unloaded in three to four minutes. Speed of the spreader was

(*Continued on p. 41*)

"Specified and used over 600,000 feet of Transite Water Pipe."

A. R. Todd, Consulting Engineer,

A. R. Todd and Associates, Wheeling, W. Va.



"Transite® Pipe gives our clients distinct advantage in economy," says Mr. Todd. "It is quick and easy to install, and once in service the economies continue. That's because Transite remains unaffected by external or internal corrosion, assures a tight and flexible installation for the life of the system, protects the quality of the water it carries, and minimizes maintenance and operation costs. We have found these features to be very important in an area known for highly corrosive soils and rocky terrain.

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JOHNS-MANVILLE

JOHNS MANVILLE JM PRODUCTS

Conventional truck-and-spreader . . .

. . . and a special truck-drawn rig place fines.

kept under 20 mph to minimize disturbance of the keyed base course aggregate.

The rate of feed is adjustable to spread material in 1-in. to 12-in. layers. A horizontal auger at the bottom of the trough spreads the material and keeps it flowing smoothly.

The auger has a chain drive, with power take-off provided by a small rubber-tired wheel in friction contact with, and driven by, the outside left tire of the rear axle. The auger rotates only when the rig moves. The truck driver operates hydraulic controls in the cab to raise or lower the friction drive wheel in contact with the truck tire.

After the workmen had completed choking, watering and rolling a strech of waterbound macadam, it was let cure for a few hours until all surface water was gone. Mechanical brooms then swept the surface clear of loose fines, exposing the aggregate.

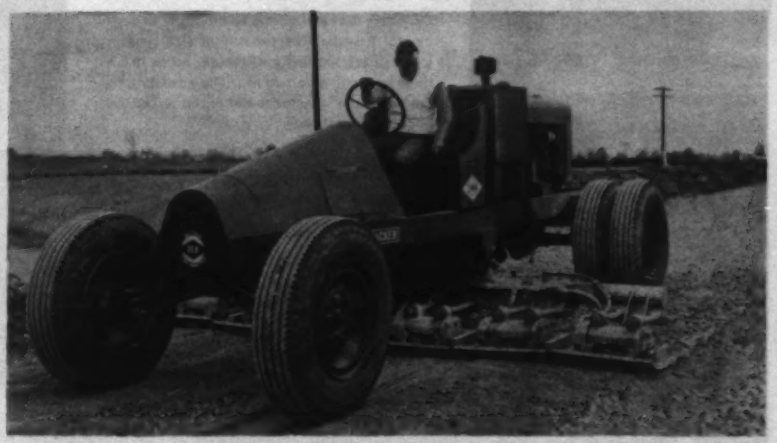
Crews then applied a prime coat of bituminous material with a distributor at a rate of 35 gal per 100 sq yd. After the prime coat had cured until it was no longer tacky (three to five days), workmen laid the 3-in. waterproofed aggregate base coure or the 3-in. bituminous macadam.

The waterproofed aggregate base course material is a plant mixture to the bituminous concrete base course, but with more fines and just enough bitumen to hold the aggregate together for adequate compaction. This hot-mixed material was applied full depth with a bituminous paver and compacted with both steel-wheel and 30-ton rubber-tired rollers.

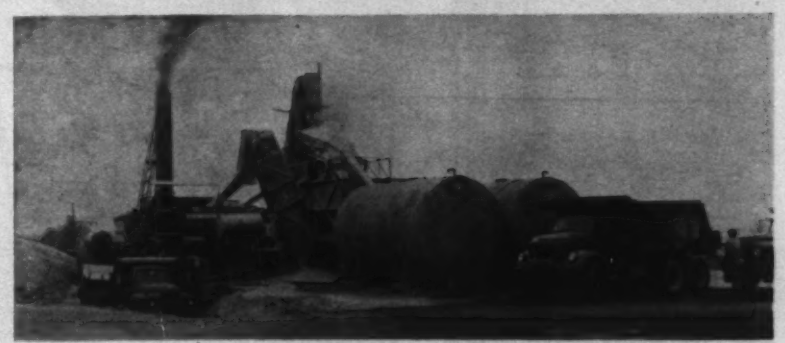
Specifications for the waterproofed aggregate called for 1½-in.-maximum aggregate with 70 to 90% passing a 1-in. screen; 50 to 85% passing a ¾-in. screen; 25 to 60% passing a No. 4 sieve; 10 to 30% passing a No. 40 sieve; and 3 to 10% passing a No. 200 sieve. The bitumen content was 3 to 5% by weight.

Both the 2¾-in. asphaltic concrete base course and 1½-in. asphaltic concrete surface course followed conventional construction procedures, except that a hot longitudinal joint was required and the 30-ton rubber-tired rollers were required in conjunction with heavy steel-wheel rollers. Two bituminous pavers, working close together, made the longitudinal joints. Specifications required the pavement surface to be finished to a tolerance of ⅛-in. in 10 ft.

During peak construction, two 120-tph continuous-mix plants produced the asphaltic concrete and waterproofed aggregate base course material for Jurgensen's 11.2 miles of four-lane pavement.



Limestone screenings are vibrated into the base course.



Contractor uses two 120-tph continuous-mix asphalt plants.

In the Red Eagle and Rhoten contracts, the bituminous paving work, including base courses, was performed by Decker Construction Co. under subcontracts.

E. S. Preston is Ohio's Director of Highways, and C. W. McCaughey is deputy director for design and construction. Vernon Patrick was project engineer on Jurgensen's contracts assisted by John Slaughter and Don Scott. Arthur P. Powell was project engineer on Red Eagle's contract, assisted by Ray Bonnell. Bernard Hurst was project engineer on Rhoten's contract.

This mark tells you
a product is made of
modern, dependable Steel.

Support structure

Dr. Harry Monson points to model of Experimental Breeder Reactor-II. Full size reactor towers over 100 feet into the air, looks like a huge silo with a domed top. The primary tank contains the reactor submerged in 80,000 gallons of sodium.

for atomic reactor designed with USS "T-1" Steel

A new Experimental Breeder Reactor (EBR-II) is under construction at the National Reactor Station near Idaho Falls, Idaho. This $29,000,000 project deals with the peacetime applications of atomic energy and may well show the way to an economical source of power.

This is the first nuclear reactor to have a completely integrated fuel processing plant. It will be a "closed cycle" power plant, where nuclear fuel will be employed to produce heat and at the same time "breed" additional fuel. The new fuel can then be processed into new fuel elements right in the EBR-II facility.

The longer you run, the more fuel you have. It's like putting 10 gallons of gas in your auto tank, then after driving many miles, to discover you have 14 or 15 gallons. That's how Dr. Harry O. Monson describes it. He is Project Engineer at the Argonne National Laboratory in Argonne, Illinois, where plans for construction of EBR-II were originally made.

Why USS "T-1" Steel was used.

Dr. Monson says, "It takes a strong, tough steel to support a 1,000-ton tank filled with 80,000 gallons of sodium—and "T-1" Steel is the best material we could find for columns, supporting beams and the central ring of this reactor vessel."

The bottom closure of the vessel is a solid reinforced concrete structure within which are embedded six channel beams tying together peripherally the lower ends of the columns. The top closure is tied to the bottom closure by six columns, 36" wide, located about its periphery. These columns, as well as all the beams of the top and bottom closures, are fabricated of USS "T-1" Steel.

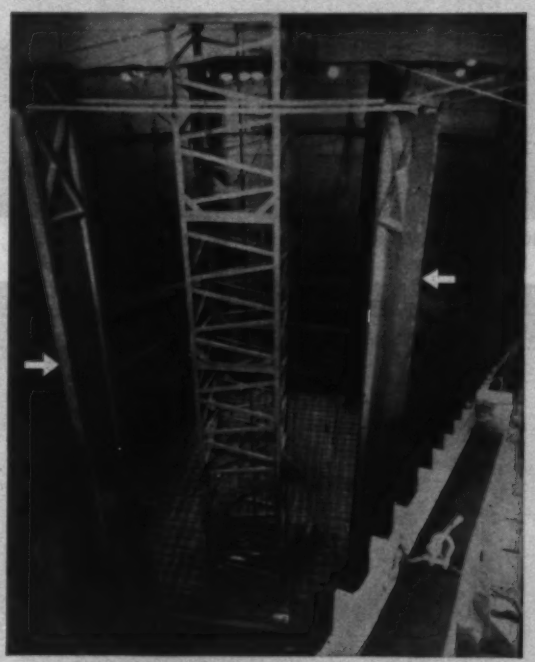
In addition to supporting the main structure, the "T-1" Steel also plays an important role in the reactor's primary containment system which is capable of withstanding, without breaching, an explosion equivalent to the detonation of 300 pounds of TNT. Such an explosion is judged to be the most serious consequence of unlikely events which might conceivably lead to an energy release in the nuclear core. To resist such an explosion, USS "T-1" Steel provides a high minimum yield strength of 100,000 psi. Yield strength of this magnitude provides a very substantial factor of safety.

Other uses for USS "T-1" Steel in construction.

The great strength of "T-1" Steel combined with weldability and high resistance to impact makes it widely used for heavy construction machinery, bridges, penstocks, pressure vessels, oil tanks and other structures where strength with least weight is desired. For complete information, write for our "T-1" Steel booklet. United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

USS and "T-1" are registered trademark

Reactor under construction showing two of the six 36-inch columns welded from USS "T-1" Steel plates ranging from 1 inch to 5½ inches thick. 184 tons of "T-1" Steel were used in the structure for columns, channels, cylinders and rings. Fabricated by Nordberg Manufacturing Co., Milwaukee, Wisconsin.



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OFFICE BUILDING for Western Electric will cost $20 million.

Biggest

By Marianne Friedland

The Bell System–American Telephone and Telegraph Co. and its subsidiaries–doesn't build itself monogrammed monuments; its equipment buildings don't usually win architectural awards; motorists drive past telephone offices without a second glance. But year after year this modest giant spends more money for buildings than any other private buyer of construction.

An indication that it doesn't intend to build less in the future came this week AT&T sold $250 million worth of debentures for new construction and improvement of plant facilities.

Those funds will continue a program that this year will cost about $290 million–$215 million for AT&T and its affiliated telephone companies, another $75 million for Western Electric, the biggest AT&T subsidiary.

Nearly 13,000 architects, engineers, contractors and other construction men will have participated in this building bonanza. They will have erected 1,500 new structures and structural additions.

But big as it is, the Bell System's building construction goes along without fanfare. Few persons outside AT&T are familiar with its construction activity.

Despite its size (AT&T and subsidiaries supply 80% of the telephone service in the U.S.) the Bell System pre-

Assistant Editor Marianne Friedland is one of the few journalists to have come up with the right mixture of persistence, hard work and charm to break through AT&T's traditional corporate reticence.

EQUIPMENT PLANT has 1.3 million sq ft of floor space.

Buyer of Buildings: Modest AT&T

fers to "go small on big business." Each of the 20 associated telephone companies operates with a great degree of independence, and is largely responsible for its own building program. Western Electric, the manufacturing arm of the System, is totally divorced from AT&T in the management of its building program.

But, small town telephone building or 31-story Western Electric office building in New York–it's all the Bell System.

The telephone companies stay out of the construction limelight by taking competitive bids by private invitation only. Construction contractors, architects and engineers are chosen on the basis of reputation, reliability and experience. Then bidding, by constructors, is a private affair.

For those designers and builders who do obtain work from the telephone companies, the rewards can be good, the work steady.

• **Managing a building program**–Telephone building projects vary in size and scope and are dispersed widely throughout the U.S.

AT&T, the parent company, owns all or the greater part, of stock in 20 associated telephone companies. Among them: New York Telephone Co., Michigan Bell Telephone, and Northwestern Bell Telephone Co.

Also under AT&T are Western Electric, the manufacturing, purchasing and distributing arm for the System; and Bell Telephone Laboratories, a centralized research facility.

To assist the companies in building their various structures, AT&T has its own engineering group, acting in a consulting capacity as an interchange for information, and recommending certain building standards for use by all the associated companies.

Each associated telephone company operates independently. A chief engineer's office in each company plans for future building needs. For the actual construction this chief engineer has a building engineer who, together with his staff, takes charge of planning, coordinating, awarding and supervising a project.

As public utilities, the AT&T phone companies are sensitive to local opinion; they try hard to keep their buildings in tune with their surroundings. They employ local architects and builders wherever possible.

However, it is necessary at times to bring in outsiders on larger jobs where there are not enough qualified local firms for adequate competition.

Bell Labs also employs outside architects, engineers and builders.

But Western Electric operates differently. The organization has its own design staff of about 180 architects and engineers who handle normal work loads. During peak work periods, some design is given to outside architects and engineers, but even then Western Electric's engineering staff prepares the over-all plans and maintains a strong supervising hand.

While the telephone companies must contend with a variety of needs and locales, Western Electric is concerned with fewer buildings of essentially two different types–distributing centers and manufacturing plants for telephone equipment. Western Electric believes its staff is expert in this field and can best interpret its own design needs. To date they have built 32 distributing centers and 22 manufacturing plants.

• **Who does the work**–Telephone companies select from among the most prominent architects and engineers in a community for their projects. Contractors are chosen by reputation and experience, and by a suitable relationship between the size of the contractor's organization and the size of the project. Between 5 and 10 contractors are selected and invited to bid on a job. The final choice then is usually determined on the basis of competitive bidding.

The role an architect plays in the actual design of a telephone company structure is often quite restricted. Although he gets full credit for design, the architect must work within carefully circumscribed limits.

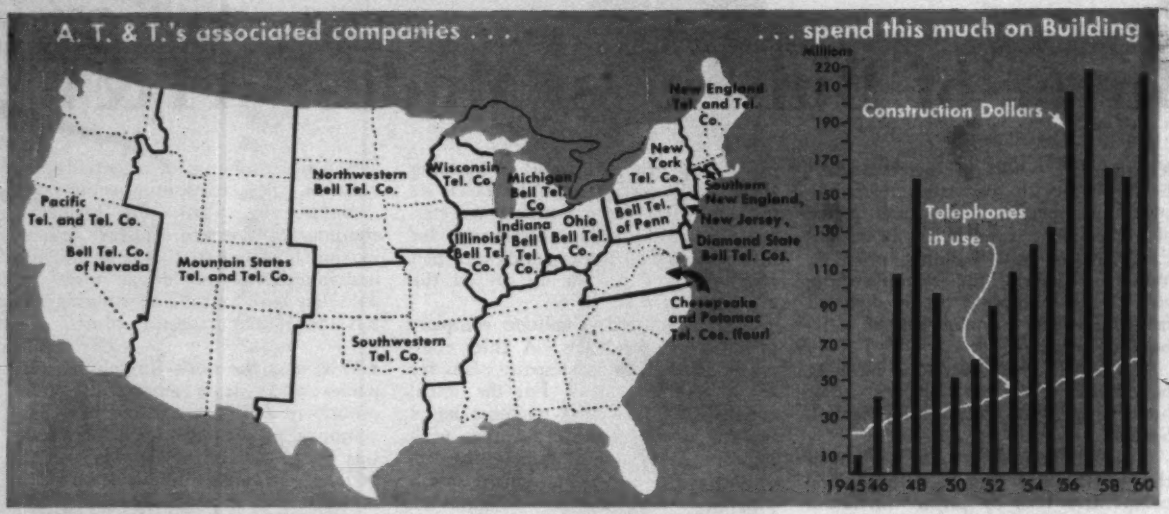
A good part of the basic space planning, column spacing, and preparation of standard details is done by the building engineer's department. This is necessary to insure proper placement of the highly complex equipment within the building, says H. E. Phillips, AT&T's chief building engineer.

However, the phone companies' building engineers try to give the architect sufficient freedom in choice of materials and structure so that he can design an attractive building.

(*Turn the page*)

SMALL OFFICES like this one are numerous.

FITTING THE LOCALE is design aim.



SPRAWLING AT&T, through its associated telephone companies, services and builds in most areas of the U. S.

It is in the area of building standards that AT&T's building engineer's organization best serves the associated companies. This group has developed detailed knowledge of telephone building construction, which the associated companies draw on. Information is issued on such items as cost, mechanical equipment, structural materials and spacing of structural members.

"An important feature in negotiations with the architect is to provide written instructions at the start of a project so that there is no question about the scope of the work and the requirements of the telephone company," explains Mr. Phillips. "These instructions would include such items as type of structural frame, exterior wall construction, interior partitions, wall, floor and ceiling finishes, and floor loads."

A contractor, by the same token, also operates under carefully detailed written specifications and is supervised closely.

Each engineer in the associated companies' building engineer's department is generally responsible for a separate project and takes charge of a job from the time a site is selected to final completion of the structure. Supervision of building construction is often the responsibility of the architect, but the building engineer is likely to check construction features to make sure they meet equipment needs. From time to time final inspection of a job also may be made by the building engineer representatives and telephone personnel.

HOWARD E. PHILLIPS coordinates the AT&T building program.

• **Automation means complication**—More and more mechanization is the trend in telephone equipment. It is a trend that profoundly affects the job of designers and builders.

Equipment fills nearly 40% of the Bell System's 130-million sq ft of building space today. And this percentage will increase. Consequently, construction becomes more rigid and precise.

Dimensions around equipment must be carefully controlled. Cable holes and inserts in floor slabs to support equipment must be exactly located. Ceiling heights and clearances under ducts are critical if equipment is to fit. And design loading must be ample (most telephone equipment buildings are designed for live loads of 150 psf).

Community dial offices, providing telephone services for small communities, are now fully automated, with no employees in attendance other than for maintenance. The same holds true for radio and repeater buildings, which house equipment that amplifies the message-conveying current.

Large equipment buildings still contain some operators and office personnel, and vast equipment rooms. But such structures are being designed for easy conversion to automation in the future as space requirements increase.

Western Electric's structures also are built to coddle equipment. Where sensitive electronic products are manufactured, the buildings must be air conditioned to exclude contamination from outside; dust must be kept out of the air; operators' fingers must be free of perspiration. Temperatures in existing plants can be controlled within a few degrees, and humidity is constantly maintained between 40% and 50%.

• **Selecting materials**—There is no hard and fast rule, but generally speaking, choice of building materials is made jointly by the architect and the telephone company's building engineer.

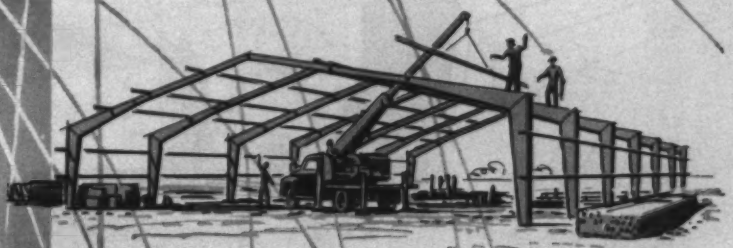
In the case of Western Electric, the manufacturing company, rather than the architect, selects materials for its buildings.

Complicating selection of materials is the fact that the ultimate structure is usually considerably larger than the initial one. Telephone buildings and Western Electric's plants are designed to "last 50 years" and are geared to adapt to a growing population.

(*Continued on p. 48*)

HAROLD V. SCHMIDT is Western Electric construction chief.

UNIFRAME



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(*Continued from p. 46*)

Most buildings are designed with a "growth wall" for later expansion. Expansion may be made laterally or by the addition of more floors. The final building may be two to four times the size of the first portion. WE's Allentown, Pa., plant, for example, built in 1946, already has been doubled in size.

Building materials are chosen to last, to have low maintenance costs and to adapt readily to expansion.

"We keep the amount of plaster used in manufacturing buildings to a minimum," says H. V. Schmidt, WE's vice president for plant design and construction. Structural tile gives us fewer maintenance problems."

Where the size of installation is limited, WE frequently will try out new building materials. "We pioneered the extensive use of gypsum roof deck poured on glass fiber boards for roofs, and now use it in many of our buildings," says Mr. Schmidt. "It has a fine U (heat-transmission) factor, good noise-absorption ratio, low fire-loss ratio; and no paint is needed."

"One of the first large-scale installations of grease-proof asphalt tile took place at our Indianapolis plant in 1950. We like its comforts, and if it wears down, asphalt tile easily can be replaced piece by piece."

Mr. Schmidt points with pride to WE's Hawthorne plant, near Chicago, first occupied in 1904, and still providing service today.

To keep a building from becoming outmoded, Bell System engineers employ movable partitions and call for open areas wherever possible. They tend to stay away from materials with unknown performance records.

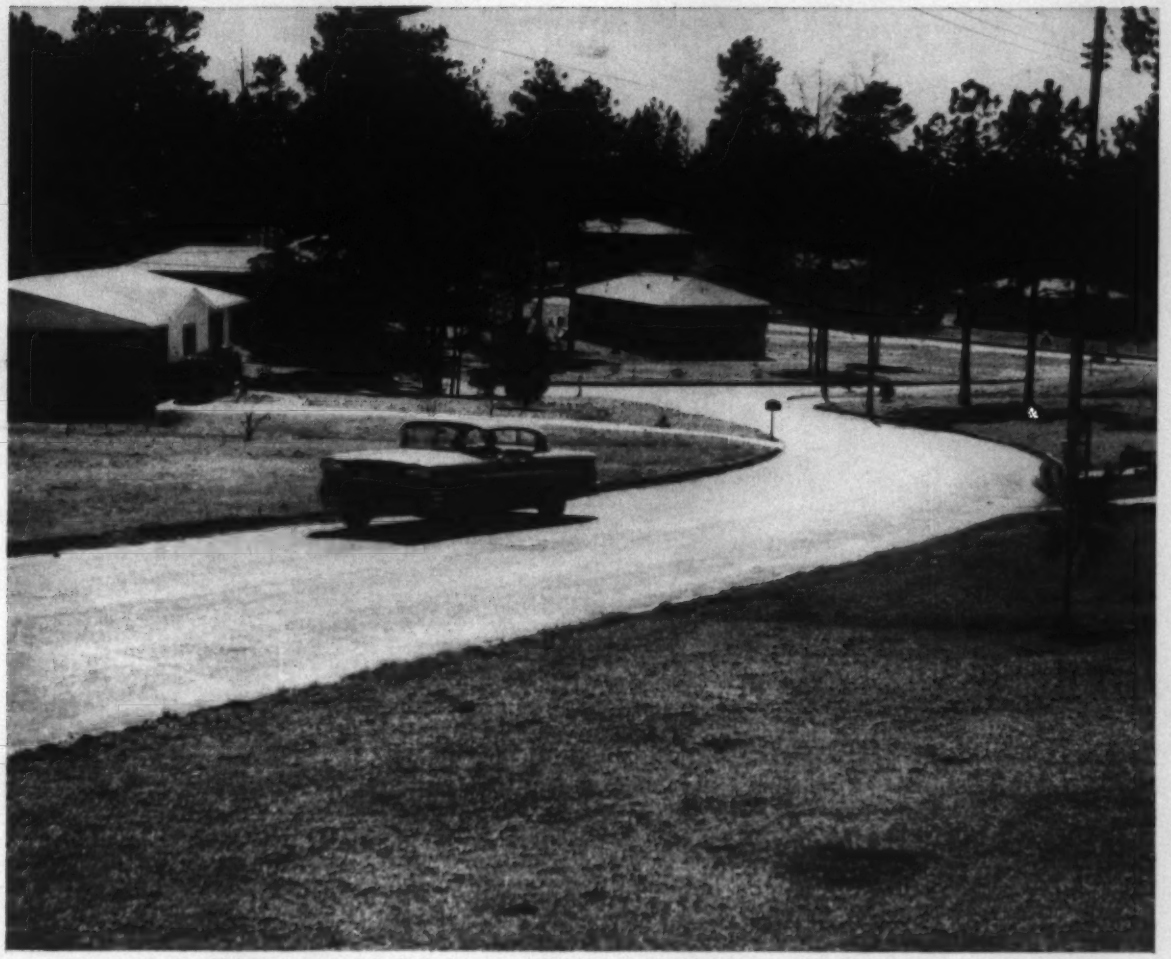
AT&T's Building Engineer's organization assists local telephone companies in selection of building products.

Mr. Phillips' department issues data sheets with information on products; the data are compiled largely from experience within the companies, also from talks with architects, engineers and builders.

The department also prepares economic studies on a variety of building materials, such as floor coverings and interior partitions. The studies evaluate competitive products and include information on original cost, maintenance costs, and life expectancy.

To determine future building needs, every department of the Bell System continuously plans years ahead and re-evaluates its plans every three months. Plans are based on forecasts of sales, housing and population trends, productive capacity and production needs.

For the years 1961 and 1962, AT&T estimates that its building volume will be at least as great as it is this year. And in the later '60s the figures should rise sharply.



Turner Heights, a typical DeKalb County subdivision paved with soil-cement. Only 8 to 10% portland cement is used, although soil is of poor quality. DeKalb County now has in service more than 1,064,000 sq. yds. of soil-cement pavement.

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Modern soil-cement—the economic answer to urban county "population explosion"

"Soil-cement has proved so satisfactory that in the last 4 years we have annually placed this type of pavement on 12 to 15 miles of subdivision streets."

That's what DeKalb County engineers report—and it's typical of reports from many street and highway departments. One good reason is low maintenance costs. Soil-cement stays lastingly solid. That's why it won't wash out or pothole.

Soil-cement is economical to place because 75% of the materials usually are free: soil, old gravel roads—even broken-up blacktop—mixed with portland cement and water, then rolled solid. A thin bituminous topping completes the pavement!

Soil-cement is waterproof, can withstand rain the day it's placed. And core tests show soil-cement gains in rock-hard strength as it ages.

These are solid reasons why soil-cement is the fastest-growing low-cost pavement for roads, streets, shoulders, subbases, airports and parking lots.

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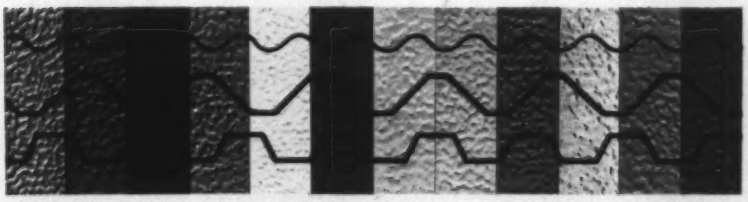
Building site, courtesy J. M. Straus Co., General Contractor, Newark, N. J.

. . . and holds the line on costs



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Emulsion Rejuvenates Asphalt

Conventional pressure distributors have been used to apply an unusual emulsified bituminous material to 60,000 sq yd of asphaltic concrete taxiway and shoulders at Edwards Air Force Base near Mojave, Calif. Applied in a preventive maintenance operation, the material is "Reclamite," produced by the Golden Bear Oil Co.

Engineers at Edwards decided to use the material after observing the behavior of several test sections placed at the base last year.

Reclamite is a proprietary compound, currently the subject of a patent application. According to the producer, it is an emulsified material that acts as a rejuvenator of asphalt by adding selected petroleum fractions. In contact with weathered asphalt, it is said that the oily phase of the emulsion combines with the asphalt to revitalize the in-place material and return it to its original condition. Developers of the emulsion believe that in many cases the treated asphalt will be better (i.e. chemically more stable) than the original material.

The material can be used in preventive maintenance or in corrective measures after damage has occurred. In preventive maintenance workers apply it to the surface before there is any visible evidence of pitting or cracking, but when such deterioration is anticipated. For corrective purposes, it is usually used in conjunction with other operations, such as scarifying, mixing and recompacting.

Treated test areas at Edwards appear to be in good condition, with no evidence of loss of matrix between particles, raveling or cracking. Adjacent untreated areas are said to show considerable pitting and some cracking.

For spray application, one part of water is added to four parts of emulsion. Application rate is from 0.10 to 0.20 gal per sq yd, depending on the type of surface exposed and the relative permeability of the pavement. In the Edwards test sections, rate was 0.15 gal per sq yd; one section had two such applications at a three-month interval.

In bulk, the emulsion has a coral red color. Sprayed on the pavement, it is pink; the color disappears as the water phase of the emulsion evaporates.

Korean Dam and Spillway Undergo Model Studies

South Korea's proposed Chungju Dam is undergoing hydraulic model studies at the Industrial Research Division, Albrook Hydraulic Laboratory. The Washington State Institute of Technology's research group is conducting the studies under terms of an agreement with the Bechtel Corp. of San Francisco. Bechtel is providing design and consulting services to the Korea Electric Power Co. of Seoul, project developers.

Two models were constructed for the studies. A comprehensive model of the dam has a 1:100 scale, and a sectional flume spillway a 1:50 scale.

Tests are being run to establish the optimum design for safe passage of flood waters, elimination of undesirable influence of spillway flows on the tailrace, and optimum tailrace excavation.

Chungju Dam will be on the South Han River near the town of Chungju. The project will support an installed generating capacity of 150,000 kw and cost about $100 million.

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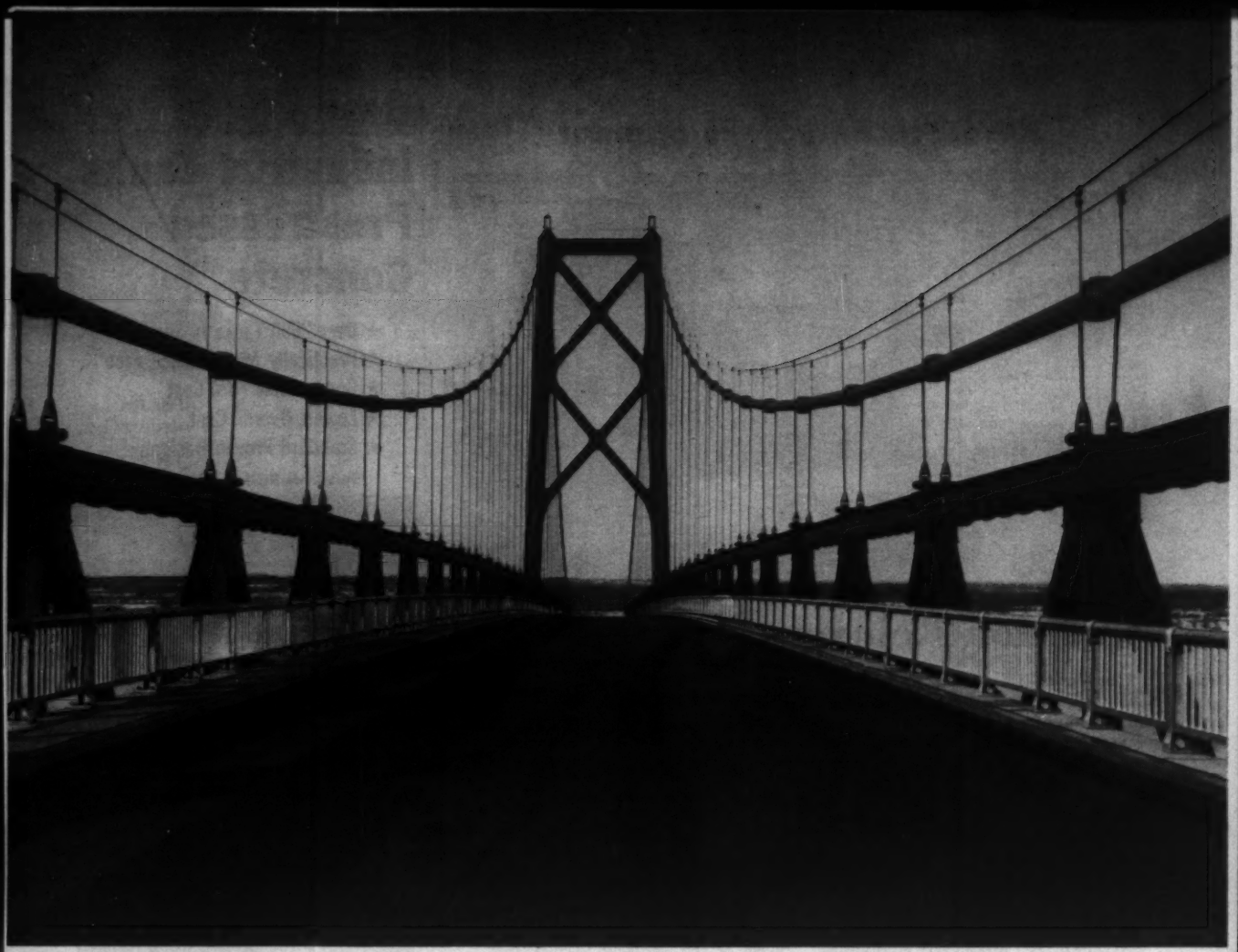

New gateway to Canada

The Ogdensburg Bridge is located between Ogdensburg, New York and Prescott, Ontario, Canada. It was designed by Modjeski & Masters for the New York State Department of Public Works and the Ogdensburg Bridge Authority. The suspension spans were fabricated and erected by American Bridge. □ This 2,634′ suspension bridge has a 1,150′ main span, two 500′ suspended side spans, and two 242′ backstay spans. Open-type USS AmBridge I-Beam-Lok was used for the roadway. It's a sturdy bridge flooring that installs easily and quickly, trims tons of deadweight, and prevents build-up of snow—extremely vital in northern New York. Write for information on our products and services, or call our sales office nearest you.

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Industrial explosions are detected and suppressed by the Fenwal Explosion Protection System within 0.005 seconds, according to the manufacturer. The units, adapted to different plant conditions, may be installed in flammable liquid storage tanks and dust extraction systems. The principles of the system may also be applied to nuclear, missile and other hazardous equipment.

The system, based on the fact that there is a finite time lapse between ignition and buildup of destructive pressures, acts within that time to snuff the explosion.

The explosion detector senses the danger through pressure or radiation devices, and generates an electrical signal. A power unit receives these signals, and delivers electrical energy to operate various explosion protection devices — either suppressors, isolation valves, vents, or a combination of all three. The suppressors, or high-rate discharge bottles, contain the suppressant, which is usually water and bromochloromethane. The isolation valves close immediately to prevent spreading of the explosive conditions, and the venting devices open immediately to relieve the area of explosion pressure.

Based on a British World War II device, it was developed for industrial use by Graviner Mfg. Co., Ltd. Fenwal has exclusive U. S. and Canadian manufacturing and sales rights for the system. Fenwal Inc., Ashland, Mass.

Two Firms Offer Peaking Plants

Westinghouse and General Motors have both placed new peaking and reserve electric power plants on the market.

Westinghouse has the Econo-Pak, a line of self-contained, automatically controlled, gas-turbine plants, in ratings of 3,000, 7,000 and 12,000 kw.

The line is designed to supplement the firm's larger peaking units. The company says the unit can be running in less than two weeks after delivery. All that's needed to set the plant in operation, Westinghouse says, is a flat concrete-slab foundation, about 3 ft thick, and electrical and fuel connections.

Installed cost of the Econo-Pak plants is said to be on the order of $80 per kw, based on winter operation, or $100 per kw for summer use.

When air temperature exceeds 80 F, evaporative inlet air coolers can be used to maintain full generating capacity, the firm says. When ambient temperature is 40 F or below, the output of an Econo-Pac plant is said to be 25% above its 80 F rating.

General Motors' Electro-motive Division has added a 10,000-kw diesel-powered generating plant called the MU-100 to its line of peaking and reserve plants. Plant cost per kilowatt is said to be about $82 at the factory.

With addition of the new unit, GM peaking plants range from 2,000 kw to 10,000 kw.

The firm says the MU-100 provides automatic, remote-controlled operation. Redesign of the existing GM peaking plant control station, the company says, has permitted addition of switchgear and controls for the MU-100. Westinghouse Electric Corp., Box 2278, Pittsburgh 30, Pa.; Electric-Motive Div., General Motors, La Grange, Ill.

Twin-Engine Scraper Has Capacity of 14 Cu Yd

Model TS-14 twin-power scraper has 14 cu yd struck capacity and 20 cu yd heaped S.A.E. rating at 1:1 slope. The all-wheel drive scraper is powered by two GM 4-71 engines, each with a separate Allison Torqmatic Drive consisting of torque converter and four speed semi-automatic transmission.

Total engine horsepower is 296. Air assist remote control and full power shift are provided. No-Spin differential is standard in both drive axles. Tires are 24.00 x 25.

Two hydraulic jacks provide full 90 deg steering.

All scraper operations—bowl, apron and ejector—are hydraulically and independently controlled. The ejector is of the positive roll out type actuated by a hydraulic jack identical to the apron jack.

Two interchangeable bowl jacks are linked to the scraper bowl. Cutting edge consists of four sections, which are identical and reversible; each section is adjustable to provide the most efficient loading in any material. Euclid Division, General Motors Corp., Cleveland 17, Ohio.

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River Speed Gaged Acoustically

Raytheon has designed an instrument that measures the velocity of water in a stream within an accuracy of 0.1 fps using principles of underwater sound transmission.

The acoustic flowmeter electronically measures pulse velocities along a path between two submerged transducers.

The transducer units are set in water diagonally across the river from each other. They are placed from 250 to 1,000 ft apart, and the line between them makes a 30-deg to 60-deg angle with stream flow direction.

Pulses are sent upstream and downstream between the units, pulse velocities are measured and the average velocity of water flow computed. The pulses are transmitted at a rate of 5 to 20 pulses per second at frequencies of 85 kilocycles and 135 kilocycles, well above the range audible to humans. Common 115-volt, 60-cycle ac power operates the system.

To arrive at the volume of water flow per unit time, it is necessary to use supplemental means to determine the cross section area of the stream.

The units consist of transducers, transmitters, receivers, triggering circuits and a computing circuit. Three cabinets, each light enough to be carried by one man, contain the entire system.

The flowmeter is not yet a shelf item. Individual systems are tailored to the needs of the customer. RAYTHEON CO., 103 RIVER ST., WALTHAM 54, MASS.

Weldmobile Is Redesigned

The Hobart "Weldmobile" has been redesigned with larger driving wheels, higher ground clearance, and, according to its manufacturer, much greater mobility.

The "Weldmobile" is a self-contained, self-propelled welder in which the generator is run directly from the engine rather than through a power take-off.

The unit is available in two sizes—a 400-amp model with a Chrysler six-cylinder industrial engine, and a 600-amp model with a Chrysler V-8 industrial engine. Wells and brackets for oxygen and acetylene tanks are built into the rear of the body, and all controls are set in a panel within the operator's compartment. HOBART BROTHERS CO., TROY, OHIO.

Briefs . . .

• **Four-wheel drive vehicles**—Half and ¾-ton vehicle K-series have four-wheel drive and V-6 gasoline engines. The series consists of K1000 models with gross vehicle weight ratings of 5,600 lb and K1500s with 8,100-lb GVW ratings. Wide-Side and Fender-Side pickup boxes up to 8 ft long are available for both models; the K1000 also is available as an eight-passenger station wagon. GMC TRUCK AND COACH DIV., GENERAL MOTORS CORP., 660 SOUTH BOULEVARD EAST, PONTIAC 11, MICH.

• **Waterproofing forms** – "Poly-Kote" compound waterproofs wooden concrete forms and at the same time preserves the wood against rotting, claims the manufacturer. The compound is said to be fast-drying, non-staining to finished concrete surfaces. Poly-Koted forms can be stored outdoors in any weather. The coating is applied by brush, spray, or mop. A one-gallon can costs $10.00. BRAD CHEMICAL, INC., 111 WEST WASHINGTON ST., CHICAGO 2, ILL.

• **Form pin puller**—A hydraulic action gasoline engine-powered concrete form pin puller is available on a rubber-tired chassis for pulling pins of all lengths. Maximum pulling force is 7,500 lb. CHAMPION EQUIPMENT CO., 3700 FOREST PARK AVE., ST. LOUIS 8, MO.

• **Colored topping**—Color-top is a moisture tight resurfacing topping available in red or green for all types of bituminous pavements. The coating is a heavy fibrous-filled compound that is weather-resistant, skid proof and prevents asphaltic surfaces from deteriorating. REVERE CHEMICAL CORP., UNIVERSITY CENTER STATION, CLEVELAND 6, OHIO.

• **Vibratory Screeds.** Heavy-duty vibrating screed machines designed to handle stiff, harsh concrete mixes are ideal for heavy-duty industrial floor, bridge slab and small road job construction. The gasoline or electric motor-powered screeds are available in 8, 10 or 12 ft. widths. VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J.

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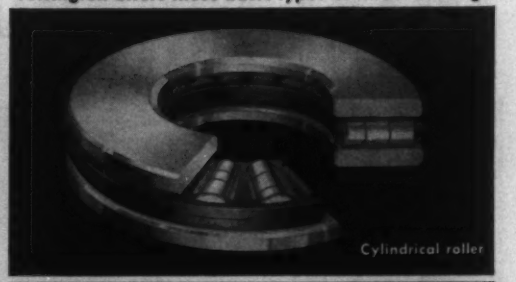
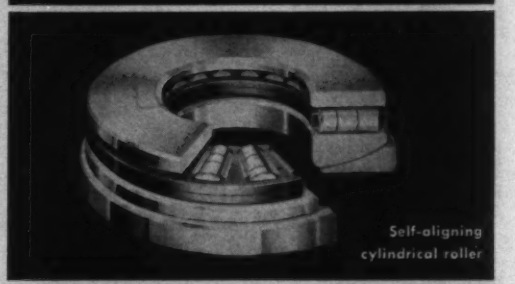
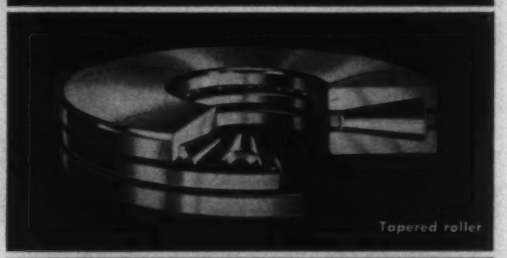


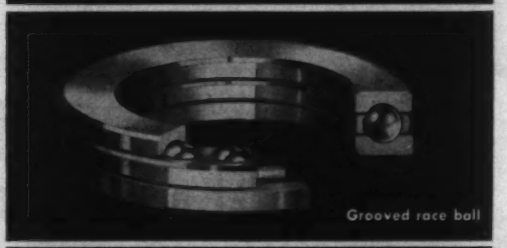
Cylindrical roller



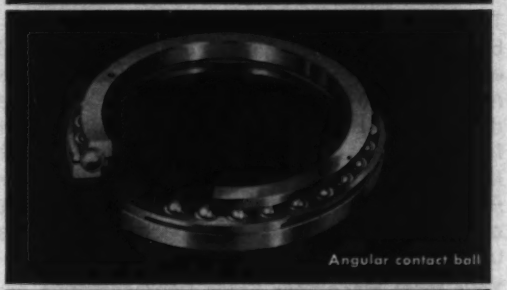
Self-aligning cylindrical roller



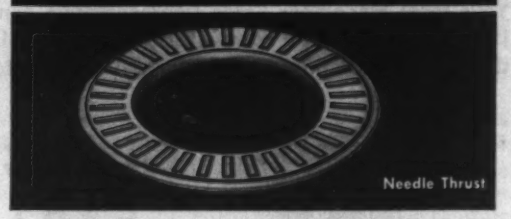
Tapered roller



Grooved race ball



Angular contact ball



Needle Thrust

progress through precision

THE TORRINGTON COMPANY

TORRINGTON BEARINGS

South Bend 21, Indiana, Torrington, Conn.

Men and Jobs

Ebasco Services' Charles C. Bonin is . . .

An Engineer with Plenty of Proof

Anyone who asks Charles C. Bonin to show his engineering credentials had best be prepared for a bit of reading. As engineering manager for Ebasco Services, Inc., Mr. Bonin has, and needs, registration certificates from 48 states, Puetro Rico, the District of Columbia and the Canal Zone.

He is, according to the National Council of State Boards of Engineering Examiners, "the most registered engineer in the United States."

But Mr. Bonin makes it very clear that the wall-full of documents hanging behind his desk is not a stunt. "I didn't get them just for the purpose of getting licenses," he says, "I got them because I have to sign drawings in those states."

Unlike stamp-collecting, coin-collecting or woolgathering, compiling a nearly complete set of registration certificates is more drudgery than anything else, Mr. Bonin says. There are forms, and forms and then more forms.

"Every application is different, and almost everyone requires you to fill it out in its entirety. And that," Mr. Bonin sighs, "is a real effort." Not the least of the application problem is supplying the invariable references. Not that there aren't plenty of people in the profession glad to vouch for Mr. Bonin's qualifications, but 51 times? Mr. Bonin has offered one man as a reference in each state "just because he has nothing to do; he's semi-retired and he gets a kick out of writing letters for me."

Exams are another hazard. While many states award registration certificates on a reciprocal basis, others require a written or verbal exam. And tests seem to get more difficult when you're twenty years out of college.

Mr. Bonin has never flunked a registration exam. Well, hardly ever.

When he applied for his California license, he was assured that a formal test would not be necessary. But when he turned up, "they proceeded to give me the damndest exam you ever saw."

Although California never said he had failed, the state did send him this note: "The sample exam you sat in on will give you a good idea of what you will have to face the next time you're in California. . . ." Mr. Bonin got the idea and, on the second try, the license.

If going through the grind of collecting all those registrations has done nothing else, it has made Mr. Bonin a strong booster of a single national registration to replace the present system of state licensing for engineers. "Just think of all the red tape involved in just getting these fool things!" he says.

At the pace Mr. Bonin moves about the world, he can't afford to get tied

Ertel self-leveling level saves up to 50% surveying time

Time saved in two ways:

1) The series of leveling screw manipulations in positions at right angles to each other required for the precise leveling of a spirit level is *eliminated*. Only a coarse leveling by three screws without rotating telescope is required.

2) When left to stand, spirit levels have a habit of drifting off center necessitating attention from the leveling screws. Unless disturbed beyond the limits set by the circular bubble, the automatic level will maintain a level line.

The Ertel Automatic Level is suited for Second Order leveling although First Order results have been obtained under test. Many have been sold on a comparison performance basis. Write for Bulletin INA which gives complete data.

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NEW briefcase-size universal computer adds and subtracts not only **decimal** amounts, but also **feet, inches** and **fractions** down to **sixteenths.**

It **converts** inches, **reduces** fractions **automatically:** the result is always in simplest form.

2 to 3 times **faster** than mental arithmetic, it allows **instant** check of the answer, eliminates expensive **errors** and need for extra **checking.**

Metal stands or **genuine** leather note-book case engineered for most **efficient** office, shop or home use come with the machine. Precision-made product of West Germany **FRACTOMATOR** carries a three-year guarantee against any defects.

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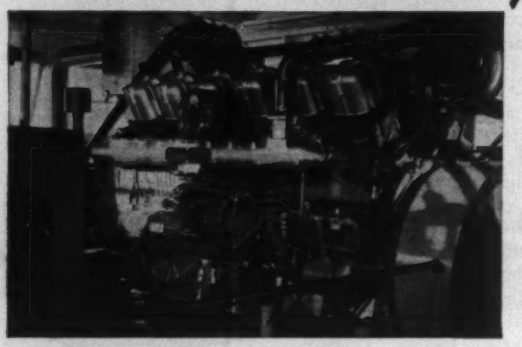
642 North Chester Avenue, Pasadena, California

Marine Pipeliner No. 114 at work for contractor-owners Marine Pipeline & Dredging Co., Ltd., of Vancouver, B. C. This 16'' suction dredge is 30' x 70' (without cutters and spuds), 5' deep, 2½' draft. Northern Engine & Eqpt. Co., Ltd., Vancouver, supplied its Waukesha Diesel.

WAUKESHA *powered*



Power plant of dredge is a WAUKESHA Model VLRDBS Turbocharged DIESEL—12-cylinder, 60° vee, four cycle, 8½ x 8½-in. bore and stroke, 5788 cu. in. displacement. An independent cooling system replaces fan. About 1100 hp is applied on actual drive. Estimated capacity of V-belt driven pump is 456 cu. yds. per hour.

Working on a water-crossing of a gas pipe line in the Fraser River, British Columbia, as shown here . . . dredging on excavation for bridge piers . . . pipeline pumping of sand directly on road grade . . . or stock-piling river-sand—the Waukesha-Diesel-powered 16-inch suction dredge *Marine Pipeliner No. 114* has the capacity, speed and flexibility to handle the job. And it's portable, too—built on six pontoons, quickly disassembled for shipping on flat cars anywhere there's a job for the Marine Pipeline & Dredging Co., Ltd. They have three other portable dredges—all of them Waukesha-Engine-powered. Contractors appreciate the simplicity, dependability, and fuel and maintenance economy of the big, powerful Waukesha V-12 Turbocharged Diesel. *Send for Bulletin 1663.*

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

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down in tape of any color. Mr. Bonin supervises the work of some 300 Ebasco engineers and more than 500 draftsmen and designers engaged at times in as many as 68 projects and spread out to nearly every state and to more than 15 countries abroad. He is long past the 2-million-mile mark in airline travels, including fourteen trips around the world.

Briefs . . .

Business

Wendell C. Struble, recently retired after 39 years with the Bureau of Public Roads, has been named head construction engineer for the general contracting firm of Commercial Iron Works, Portland, Ore.

James E. Boyce has joined Kaiser Engineers International and has been elected vice president in charge of construction in Europe, Africa and the Middle East.

Col. Everett A. Hanson, district engineer for the past three years for the Galveston District of the Corps of Engineers, has been appointed vice president in charge of engineering for the Baur Dredging Co., Inc., of Port Lavaca, Tex. He retired from military service July 31 of this year.

Gordon R. Williams has rejoined Tippetts - Abbett - McCarthy - Stratton, New York City engineers and architects, after spending seven years teaching hydraulic engineering at Massachusetts Institute of Technology.

Also going to Tippetts-Abbett-McCarthy-Stratton is **George T. Treadwell,** former chief engineer for the Port of Seattle. He becomes Pacific Northwest manager.

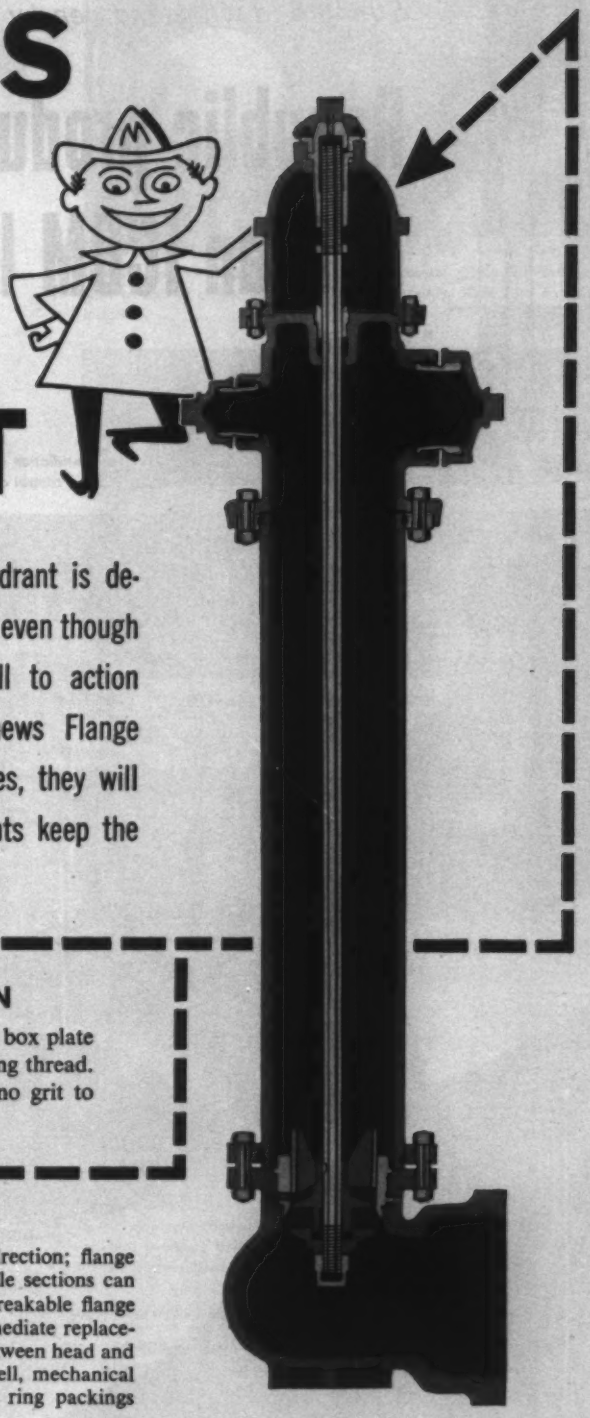
Renato G. Barreto has been appointed an associate of Paul Rogers & Associates, a Chicago consulting firm. It is expected that he will handle much of the firm's overseas work.

William F. Rooney, formerly regional office manager for Ebasco Services, Inc., in Portland, Ore., has become director of business development for Ebasco's management consulting division.

Marlin C. Young, newly elected vice president Johnson, Drake & Piper, Inc., will take charge of that construction company's new Southeastern Division office at Atlanta, Ga.

Edward E. White has been elected president of Spencer, White & Prentice, Inc., foundation and heavy construction firm headquartered in New York City. Former president **Joseph C. Weaver** moves to chairman of the board and **Robert E. White** becomes executive vice president.

MATHEWS FLANGE BARREL HYDRANT



The most important single feature of any hydrant is dependability. It must be operable when needed, even though it has remained idle for years and the call to action comes during a hard freeze. Install Mathews Flange Barrel Hydrants, and when emergency strikes, they will be ready to serve! These outstanding hydrants keep the neighborhood safe.

DRY HEAD CONSTRUCTION

Cast integral with the nozzle section, the stuffing box plate keeps water and sediment away from the operating thread. No ice to jam the thread in freezing weather; no grit to wear out the operating thread.

AND THESE FEATURES, TOO:

A swivel flange permits nozzles to be faced in any direction; flange barrel reduces accident costs because top cap and nozzle sections can usually be salvaged from broken hydrant • Optional breakable flange and stem coupling snaps in traffic accident, permits immediate replacement without excavating • Extension piece insertable between head and barrel or between barrel and elbow • Available with bell, mechanical joint or flange pipe connections; conventional or "O" ring packings

Conform to latest AWWA specifications

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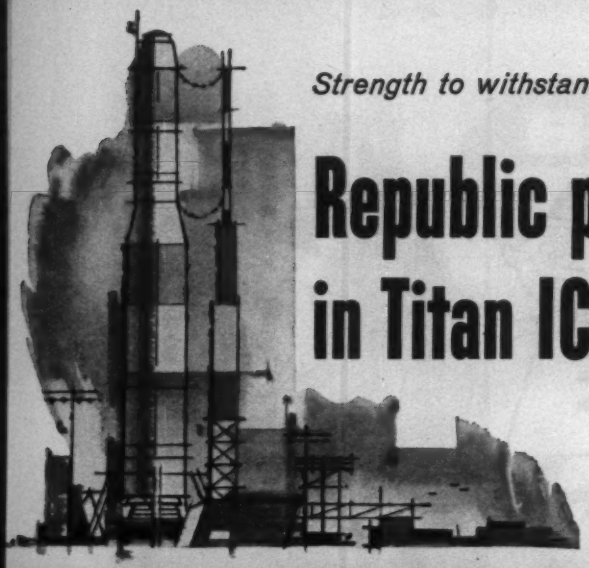
Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers also of Mathews Modernized Hydrants, R. D. Wood Hydrants, R. D. Wood Gate Valves, and "Sand-Spun" Pipe (centrifugally cast in sand molds)



Strength to withstand nearby nuclear blasts in the megaton range...*

Republic products go underground in Titan ICBM launching complexes

Installation of the first unit of Republic Sectional Plate Pipe connecting antenna silos to the control center.

Underground launching sites for the Air Force TITAN ICBM are a vital part of the United States' defense arm. Effective protection for these hard bases involved construction materials of many types —(reinforced concrete up to 8-feet thick, steel plates, blast doors, etc.). Products of proved performance and known quality were selected, for where the safety of our country is concerned, there is no margin for error.

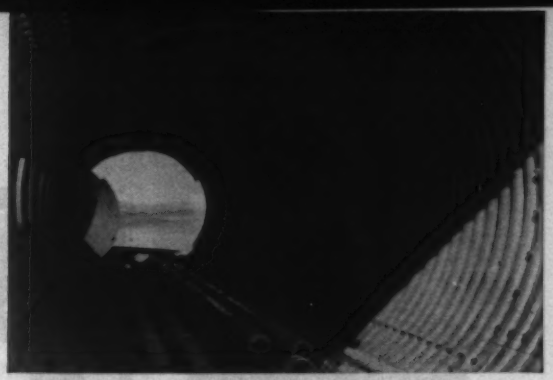
Republic Products used in the installations include: Sectional Plate Pipe, Galvanized Sheets, Bolts and Nuts, Steel Pipe, and Truscon Reinforcing Bars.

When completed, each TITAN complex (missile silos, propellant and equipment terminals, connecting-tunnel networks) will be buried under 20 feet or more of earth. The bases are designed to withstand nearby nuclear blasts in the megaton range, making the strength of basic components an important consideration.

Credit for the speed and efficiency with which the TITAN bases are being made operational goes to the military planners, to the U. S. Army Corps. of Engineers, to private design architect-engineers in the employ of the military; and to the many private contractors, subcontractors, and fabricators, who have had a part in the projects. Republic is privileged to work with these groups, through district and division sales personnel, as well as through a central co-ordinating office set up to offer complete technical service and product information.

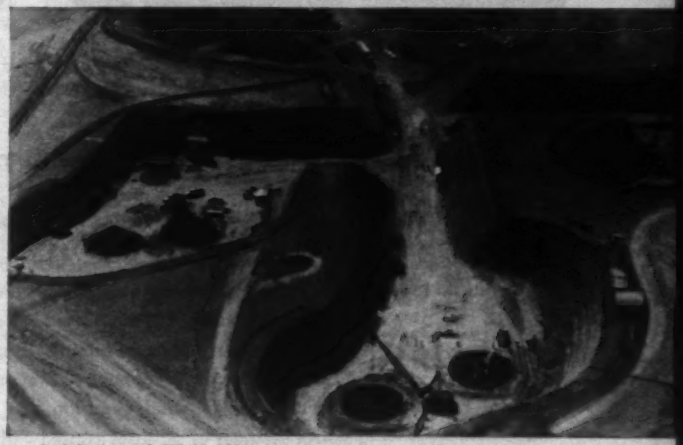
For your present and future projects, Republic offers a wide variety of construction and culvert products. Specify Republic and you're certain of highest quality materials, long-term dependability, and exceptional economy. Mail the attached coupon for specific information on the product lines in which you are interested.

*megaton—measure of nuclear bomb intensity. Equivalent to the energy release obtained by detonation of one million tons of TNT.



Interior view of Republic Sectional Plate tunnel connecting antenna silos to control center and power house. Republic Steel Pipe is being installed.

Truscon Re-Bars provide hard core of strength in domes of control centers, such as the one shown. Workmen are roughing in electrical system prior to concreting.



Aerial view of TITAN ICBM launching complex under construction. Republic products are being used in TITAN installations at Lowry, Edwards, Vandenburg, Ellsworth, and Larson Air Force Bases.

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Please send more information on:

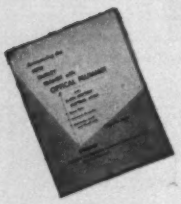
☐ Sectional Plate Pipe
☐ Steel Pipe
☐ Truscon Re-Bars
☐ Bolts and Nuts
☐ Products not listed: _____

Name _____ Title _____
Firm _____
Address _____
City _____ Zone ____ State _____

New Optical Plummet Built into Gurley Transit Saves Set-up Time, Improves Accuracy on Windy Days

Years ago, Gurley introduced lightweight instruments to combat wind vibrations. Now Gurley further beats the wind problem with an optical plummet *built into* the instrument.

The new Gurley Optical Plummet Transit eliminates swing and sway of the cord and plumb—always time-consuming and exasperating on a windy location, and inaccurate as well. Positive accuracy of set-up is assured with the Gurley Optical Plummet.



The new Gurley transit is furnished with a tripod with built-in shifting head, and allows a two-inch shift of the instrument over the point. This provides greater latitude in initial set-up.

Gurley's new Optical Plummet Transit offers one of the advantages of the optical-reading theodolite *plus* the desirable features of simplicity and universal acceptance of the American transit. For further details, ask for Bulletin OP-100.

Gurley—Since 1845

GURLEY

W. & L. E. GURLEY, UNION PLAZA
Troy, N. Y.

Obituaries

Wallis E. Howe, 92, architect and designer of many of Rhode Island's public buildings. He also designed buildings at the University of Rhode Island, the former Rhode Island College of Education and Brown University. He was a partner in the architectural firm of Clark & Howe and later in Howe & Prout, both in Providence, R. I.

George W. Hamlin, 70, former Water Commissioner of Cleveland, Ohio. In various capacities, he had a significant part in the construction of all four of Cleveland's water plants. From 1953 to 1959, he was also Acting Commissioner of Utilities Engineering.

Lee E. Pritchard, 53, chief structural engineer of Roberts & Schaefer Company's industrial division in Chicago. At the time of his death, he was on foreign assignment in Teheran, Iran.

Martin D. Whitaker, 58, president of Lehigh University since 1946. Prior to then he was in charge of Oak Ridge's Clinton Laboratories, on which he directed in design, construction and operation.

Luther E. Gregory, 88, who retired from the Navy in 1930 as a Rear Admiral in charge of the Bureau of Yards & Docks. Following his retirement, he served as director of exhibits at the Chicago World Fair and then opened an office as a consulting civil engineer in Seattle, Wash.

Arthur J. Will, 62, member of the Los Angeles Metrolopitan Tranist Authority and chairman of its Legislative Committee. He has been a member of the Authority since his retirement as chief administrator of Los Angeles County in 1957.

Frederick Arnolt, 74, former president of the Utility Construction Co., and of Arnolt Engineers, both of New Brunswick, N. J. He had also been inspecting engineer of water supply and epidemics for New York State.

John A. Jacobson, 39, a major homebuilder in Sacramento, Calif. He was a past president of the Associated Home Builders of Sacramento and a former director of the National Association of Home Builders.

Herbert Eldridge, 64, former highway director of Arkansas. He served from 1953 to 1959 as the state's first "nonpolitical" highway director, succeeding now-governor Orval E. Faubus.

For steam line in Columbus, Ohio . . .

Labor Costs Take Big Chunk

Eisenman & Elliott, Columbus, Ohio, took this $383,163 contract for the State Department of Public Works' Steam Line from the Ohio Penitentiary to the State Office Building. The second low of Piping Contractors, Columbus, missed the mark by only 4%, while the high of five bidders was off by 25%. Labor commands a sizable portion of the cost of the job, accounting for 29% of Eisenman & Elliot's bid. All of the bids were under the engineer's estimate. Robert S. Curl & Associates, Columbus, are the consulting engineers.

The steam line will extend four city blocks from the Penitentiary to the State office Building, and will supply steam for heating both the office building and the State House. The job includes placing 1,000 lf of pipe within the Penitentiary, and 2,400 lf in the public right-of-way, below sidewalks and under four main streets. Three of the streets will be crossed by installing tunnels constructed of liner plate. Spring Street will be crossed by open cut, due to clearance of existing service lines and to the Pennsylvania RR overpass. The width of the trenches will average 5 ft-7 ft; the depth, 5 ft-12 ft. Two lanes of traffic must be maintained on Spring Street at all times.

Provisions for expansion of the steam line are in loops of the same material with increased casing size. The entire conduit system will be filled with inert gas and provided with an alarm system to detect leaks which may occur in the internal pipe or in the casing.

Prevailing wage rates for the job include: skilled labor, $3.75 per hr; and $2.62 per hr for common labor.

The bidding included:

1C Eisenman & Elliott, Columbus, Ohio	$383,163
2 Piping Contractors, Columbus, Ohio	399,860
5 Lieb-Jackson, Columbus, Ohio	508,455
EE Robert S. Curl & Assoc., Columbus, Ohio	482,000

Bids: 5-25-60 Items	Unit	Quantity 1C	Unit Prices 1C	2
Cond, [a] "Ric-Wil", steam 10" & cnds 4", el 150 CI case, [b] f & i	lf	8,000	$328,254	$358,000
material			250,000	
labor			78,254	
Cond, "EBKO", f & i [c]	lf	8,000	−5,275	2,500
material			−5,275	
labor			none	
Line, steam, temp connect new & existing	ls	job	1,300	1,800
material			1,000	
labor			300	
Line, steam 10" & cnds 4" to pwr hs, replace [d]	ls	job	59,334	36,760
material			25,000	
labor			34,334	

Liquidated damages: $50.00 per day
Contract dates: 7-14-60/10-31-60

[a] mech contract (base bid) [b] 3,000 lf each, 10" steam & 4" cnds [c] alternate "M-I", same as bid except for manufacturer; alt "M-I", (EBKO) accepted in award [d] extension of line inside penitentiary

Sequenced Flashing Lights For Illinois Airport

A low of $6,421 by B & F Hi-Line Construction Corp. of Rockford, Ill. took the Greater Rockford Airport contract for installation of sequenced flashing lights on high intensity approach light system.

The second low of Lee Electric Co., Robbinsdale Minn., was 28% above the low, and Interstate General Contractors, Inc., Chicago, were high of eight bidders with a price 69% above the award. The job is for the Federal Aviation Agency, region three, Kansas City, Mo.

Control and power for the sequenced flashing light system will be accomplished through continuous lengths of underground cables from the existing regulator substation of the approach light system. Splices in power and control cables will not be permitted.

The government will furnish all of the material, including; twenty-eight flasher assemblies, armored and non armored power and telephone cable, and #6 copper wire.

Minimum wage rates specified in the contract include: boilermakers, $4.15 per hr; bricklayers, $3.80/hr; carpenters (building), $3.40; cement masons, $3.25 building and $3.40 heavy & highway; electricians, $3.70/hr; $2.55 for laborers; and $3.80/hr for plumbers.

The bidding included:

1B B & F Hi-line Const. Corp., Rockford, Ill	$6,421
2 Lee Electric Co., Robbinsdale, Minn	8,059
8 Interstate General Contractors, Inc., Chicago	20,594
EE Government cost estimate	8,346

Bids: 6-21-60 Items	Unit	Quantity 1B	Unit Prices 1B	2
Cables, instl, *				
trench min deep 36" [a]	lf	2,600	$0.75	$0.45
4"	lf	220	0.75	0.40
3"	lf	120	0.70	0.35
duct or cond	lf	30	0.20	0.10
additional	lf	120	0.30	0.05
Light, flash seq, instl, *				
flush in exist base, [a]	ea	2	30.00	100.00
on steel stand, [b]	ea	2	145.00	200.00
on 1000' bar, [c]	ea	1	90.00	150.00
on steel tower [d]	ea	23	156.50	250.00
Master timer, instl wiring & related items in exist reg substa c in p [e]	ls	job	150.00	250.00

* complete in place
a Includes connections, power unit & incidentals (if ordered) b Includes grnd rod & wire, cables in cond, connections & incidentals mounting height 6'0" to 11'6" c Includes grnd rod & wire, cables in cond, connect junct box "X", & incidentals d Mounting height 11'6" to 124'0", includes ground rod & wires, cables in cond, connect's and incidentals e Includes cables in cond wiring & incidentals

Completion time: 45 calendar days
Liquidated damages: $50.00 per calendar day

POSEY WORKS FOR BETTER-

PIPE & SPECIALS

Large OD AWWA pipe for water and sewerage—can be coated, wrapped or lined. Special fittings designed and fabricated.

For FREE 16-page illustrated catalog of large O.D. pipe, write:

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Custom Fabrication For Over 50 Years

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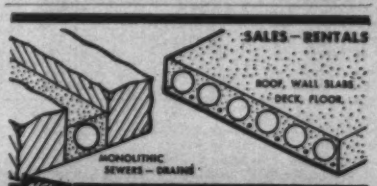
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

561 S. PRINCE STREET LANCASTER, PA.

SALES—RENTALS



NEW! VOIDS IN CONCRETE with ELGOOD INFLATABLE VOID FORMS

REUSABLE RUBBER VOID FORMS FOR SEWERS, SLABS, DRAINS & DUCTS. SUPERSEDES ALL VOID FORMING TECHNIQUES.
• ALL DIAMETERS 3/4" TO 120"
• GUARANTEE MINIMUM OF 100 USES Field experience, 250-3000 uses
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PNEUMATIC GROUTER and "Pea Shooter"

Efficient and easy to operate. Places low pressure grout . . . also injects sodium silicate emulsions to stabilize ground. Readily converts to Pea Shooter. See Catalog No. 13.

MAYO

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TUNNEL AND MINE EQUIPMENT
Lancaster, Penna.

Materials Prices Monthly Market Quotations By ENR Field Reporters

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized
Atlanta	$186.10pz	$154.95pkkz	$309.90pz	$348.65pz	.....	.....	$33.20uu	$36.70uu	$36.50kk	$28.50kk	$28.50kk
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00	41.00	35.80	23.40	.....
Birmingham	135.00pez	152.00pez	.....	303.00p	376.00p	465.00p	27.00ff	38.00jj	38.25mm	20.87mm	36.33pmm
Boston	232.00†mm	248.00†mm	463.25†mm	586.00†mm	.....	.....	43.50p	58.00p	42.00§	34.00§	.....
Chicago	137.00ll	149.00ll	280.00ll	.....	.....	.....	32.00	34.00	1.00llaa	.90ollaa	.....
Cincinnati	179.00mmyy	190.00†mmvv	355.00†ddmm	390.00†mmvv	422.00†mmvv	500.00†mmvv	48.00ft	47.00ft	29.10†mm	29.10†mm	29.10†mm
Cleveland	205.00tt	219.00tt	.....	465.00tt	.....	709.00tt	43.25tt	47.25pttt	32.75ptt	28.00ptt	.....
Dallas	155.00	155.00	306.00	370.00	452.25	560.00	30.00	50.00	41.80	34.25	38.50
Denver	170.00	185.00	310.00	310.00	390.00	442.00	35.00zz	54.00	50.00p	44.00p	46.00p
Detroit	257.00mm	274.00mm	514.00mm	582.00mm	767.00mm	876.00mm	53.50pmm	54.00pmm	38.00mm	30.00mm	40.00mm
Kansas City	158.00	158.00	312.00	312.00	400.00	500.00	34.00	34.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	40.00uu	.....	38.00mall	38.00mall	39.00mall
Minneapolis	208.00pz	225.00pz	452.00pz	225.00pwz	.....	.....	49.00rpz	57.00ypz	50.00bbe	40.00bbe	52.00bbde
Montreal	168.78Rugoo	180.93augoo	325.00augoo	220.00qoo	400.00qoo	.....	48.25bll	56.30bll	39.00	22.00	13.25
New Orleans	178.00	178.00	371.25	371.25	.....	.....	43.00	55.00	36.00p	36.00p	.....
New York	185.00k	197.00k	204.00ck	297.00kn	.....	.....	46.00p	.....	40.00p	38.00p	.....
Philadelphia	202.10zz	215.60zz	404.20zzz	485.10zz	.....	.....	42.00mm	50.00mm	40.00mmp	31.50	21.50
Pittsburgh	200.00t	213.00t	400.00t	453.00t	607.00t	693.00t	42.00t	40.00t	30.00t	26.00t	34.00t
St. Louis	180.00mmpp	190.00pp	385.00pp	410.00pppp	459.00pp	621.50pp	44.00mmpp	45.50ppR	1.00aapp	.80aapp	1.35aapp
San Francisco	156.85*mm	177.10*mm	235.30dd*mm	159.40qqmm	.....	.....	43.00*mm	43.00*mm	39.24mm	29.24mm	31.74mm
Seattle	235.00pt	270.00pt	490.00pt	265.00pwt	.....	.....	57.00t	71.00t	52.00bbt	39.00bbt	4.50bbtt
Toronto	169.00rr	185.50rr	360.00rr	281.50frr	405.00rr	.....	27.00rr	65.00rr	42.00mm	38.00mm	36.50mm

*§ F.o.b. yard. **F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *a Smooth. *b $4.80 del. *c 8 x 12 x 12 in.-8 cell. *d Pulverized hot. *e less 8% disc., 10th., *f 6 x 8 x 12. *g Lumps, $26.72. *h F.o.b. trucks, job site N.Y.C. *i 80 lb sacks. *j Truck load or over. *k $1.00 discount per M, 10 days. *l Red face. *m Per bb'. 180 lb. processed. *n 7¾ x 7¾ x 12. *o Mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra (8%). *r Not used: earthquake danger. *s 8 x 16 x 12. *t less 2% disc., cash. *u Incl. Federal tax. *v Sand lime. *w 8 x 8 x 12. *x dumped. *y Chi common. *z Pebble; 80 lb sack. *aa 80 lb sack. *bb LCL. *dd 8 x 12 x 12. *ff 90% common. *gg Smooth. *hh less 25¢ disc., cash. *ii F.o.b. plant. *jj rough; smooth; $40. *kk 3½ x 11½ x 11½. *ll less 2% disc. 10th. *mm less 2% 10 days. *nn F.o.b., L. A. *oo less 2%, 30 days. *pp add 2% sales tax. *qq 8 x 8½ x 11½. *rr 2½% disc., 10 days. *ss 8% disc., 10 days. *tt less 2% disc., 15th. *uu less 50¢/M, 10 days *vv 4000 pcs. and over. *R revised.*

PAINT, ROOFING—F. O. B. CARLOAD LOTS

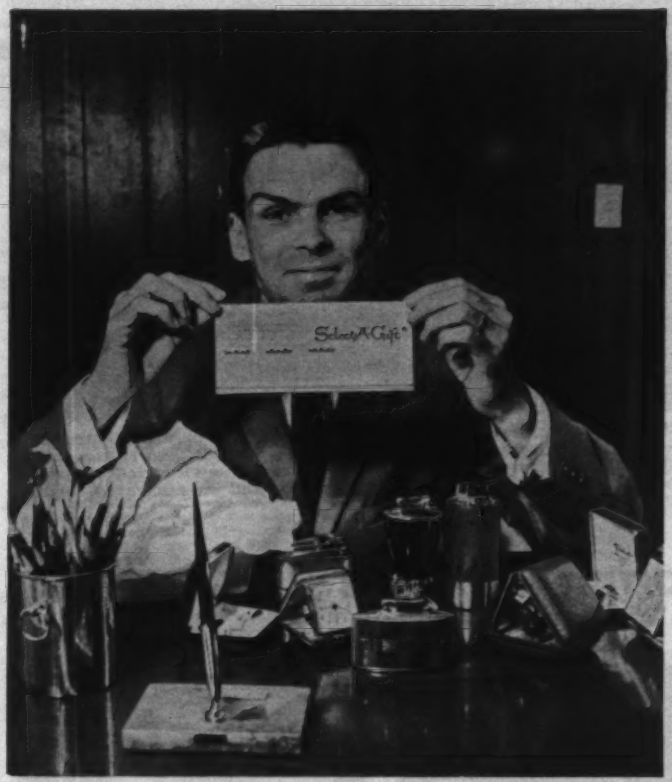
	RED LEAD Per 100 lb. in 500 lb. (Approx.) bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. in 100 lb. cases In oil	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$13.75ppJO	$24.00ppJ	$3.59	$3.86	$3.31	$2.90kk	$2.25kk	$2.85kk	$0.67kk	$65.35kk
Baltimore	17.50ypp	24.00	3.00	4.40	3.50	3.06	3.67	4.04	.50	54.00
Birmingham	26.00†J	29.00†J	3.90J	3.40J	.....	2.95†mm	2.17ii†mm	3.17ii†mm	.78ffmm	48.00emm
Boston	24.95†oomm	26.90†mmm	.....	.....	.....	3.30q	2.45q	2.79q	.55q	58.00q
Chicago	15.25rJqqpp	24.00†J	.....	.....	.....	3.45ukk	2.50ckk	3.00ekk	48.00bbekk	57.70†kk
Cincinnati	15.25†JO	24.00†J	.....	.....	.....	2.74mm	1.88omm	2.42omm	.56pmm	55.96Hmm
Cleveland	25.65†	26.90†	2.63qqP	2.52aapp	3.43qqq	2.60q	1.75e	2.35e	.39y	49.00yy
Dallas	22.50	23.50M	.....	3.25E	.....	3.00u	3.00e	3.00e	.470	66.00kk
Denver	23.85n	24.00	3.70	5.10	3.70	2.71	1.93e	2.80e	.50ff	50.00
Detroit	15.75r	24.00rr	3.70mm	3.95mm	2.70mm	2.83mm	1.81omm‖	2.23omm‖	.56ffmm	49.00mm
Kansas City	26.90lqqoo	25.65	3.99	3.43	3.01	3.00mm	2.50omm	2.50omm	.55y	.....
Los Angeles	16.25yy	22.00	3.30n	4.50n	4.20n	3.40ukk	2.40ii†kk	I	.75nykk	I
Minneapolis	17.25N	21.50kk	.....	.....	.....	2.50kk	1.81ii†kk	2.36ii†kk	.52ikk	50.00rkk
Montreal	19.45O	26.00ttt	5.53Dfq	6.55ff	5.10kfq	5.40	4.65f	4.65f	1.60	4.40uu
New Orleans	23.00Jpp	24.00J	.....	.....	.....	2.78	1.98	2.85	.680	45.50
New York	15.75eeO	20.75	.....	.....	.....	2.79zz	1.91zzo	2.46o	.52z	49.00*
Philadelphia	16.25Omm	24.75mm	3.35mm	3.90mm	2.65Rmm	4.70	3.60	2.85	.515	50.00
Pittsburgh	21.00mppJ	24.00J	2.20†EJ	2.25†FJ	3.25qGJ	2.90aH	2.15aH	2.15H	.56H	55.00H
St. Louis K	25.65†m	26.90	.....	.....	.....	3.25iimm	2.37kkK	2.84kkK	.48qK	62.00K
San Francisco	26.70mm	26.90mm	3.30mm	4.30mm	3.50mm	2.87mm	1.72aaimm	2.50mm	.46‖†	54.00
Seattle	13.35HO	24.00Hf	.....	4.19eeffJ	.....	3.70qeeH	3.06kkeH	.....	.59ee	.....
Toronto	14.45	20.65	5.16J	6.18J	5.95J	3.50	2.75aaz	2.75o	.91J	56.00A

*† Delivered. * Note: Red lead in oil 50% higher than white lead in oil. ** Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-69A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e Per 108 sf roll. *f Per 432 sq ft. *g F.o.b. yard Roxbury. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers. *k Over 50% ferric oxide. *l Not used. *m 100 lb. keg. *n F.o.b. city. *o Per 80 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *x Ready-mixed. *y 55-gal container. *z Drums. *aa 16 lb. *bb Roofers coating and cement. *cc LCL, truck delivery. *dd Asphalt pitch in 100 lb package. *ff 5-gal drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per 324 sf roll. *jj Asbestos roof coating. *kk less 2% disc., 10th. *mm less 2% disc., 10 days. *oo 100 lb bbls. *pp 50 or 100 lb bags. *qq 500 lbs or more *rr F.o.b. plant, Detroit. *ss 80 lb bbls. *tt 25 lb kegs. *uu 250 lb bbls. *xx Sept.: Rolls revised to $2.75, Asph. Felt revised to 1.71. *yy Sept. revised to $12.00. * zz Sept. revised to $2.80. *A 400 lb barrels. *B ASTM Spec. D962-49. *C 95%. *D Std. black. *f Milt. spec.: E TTP27; F TTY81; G TTP31. *H less 2% disc., cash. *I Per 100 lb. *J less 1% disc., 10 days. *K add 2% sales tax. *L CL. *M 1 ton or more. *N under 500 lbs, add $1. *O 50 lb. bag.*

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	Gauging per ton	VERMICULITE‡ Home Insulation pellets	Plaster aggregate	Concrete Aggregate treated	PERLITE‡ Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEET† Flat .100" th 36"x108" & 48"x144" per lbjt	Corr roof .032" th 35"x12' per sht	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96"-120" per cwthh	28 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ¾"b	½"c
			per bag of 4 cu ft										
Atlanta	$32.00ss	$42.00ss	$1.55sss	$1.65sss	$1.80sss	$1.65ss	$1.65ss	$0.463nnoo	$27.17nY	$65.68nzz	$74.43nzz	$0.1763ss	$0.2464ss
Baltimore	24.00	35.70	0.95	1.15	1.15	1.15	1.55	0.462	0.451r	63.00	71.25	0.16	0.23
Birmingham	37.00ss	43.00ss	1.55ss	1.55ss	1.60ss	1.27ss	1.27ss	0.455M	9.62K	65.54K	73.79K	0.20ss	0.27ss
Boston	24.00	30.00	1.40	1.40	1.40	1.55ss	1.55ss	0.474	25.07pAA	64.42dd*zz	72.67dd	0.1763ss	0.2464ss
Chicago	1.45bbtt	1.45bbtt	1.55	1.60	1.60	1.60	1.60	0.564z	33.43p	64.15ee	72.40ee	0.1723	0.2418
Cincinnati	23.85*ss	23.85*	1.75*ss	1.75*ss	1.85*ss	1.85ss	1.90ss	0.514	9.21	61.00zz	71.25zz	0.1814ss	0.2545ss
Cleveland	28.00N	45.00N	1.14ss	1.16ss	1.24ss	1.45ss	1.45ss	0.455aa	8.48	63.33eezz	71.58eezz	0.1723	0.2418
Dallas	30.65	30.65	1.05	1.21	1.37	1.21	1.32	0.463	0.461r	64.09	72.34	0.1668	0.1986
Denver	27.00	27.00	1.50	1.40	1.50ss	1.50ss	1.60ss	0.475	10.89	65.32gg	73.57gg	0.1670	0.2345
Detroit	28.00ss	28.00ss	1.37ss	1.31ss	1.40ss	1.45ttt	1.50ttt	0.475a	10.35a	63.00zzz*	71.25zzz*	0.2058	0.2889
Kansas City	30.00	35.00	1.19E	1.21E	1.29E	1.21	....	0.463	24.65ggvvp	67.50E	76.25E	0.1310	0.1480
Los Angeles	27.00tt	28.00tt	1.25ttt	1.30ttt	1.45tt	1.11	1.11	0.459	9.77Z	65.02	73.27	0.1670	0.2345
Minneapolis	35.00F	35.00F	1.65tt	1.80F	1.95Fl	1.40S	1.50S	0.485	16.23	63.61GR	69.61fG	0.1814f	0.2545
Montreal	22.60A	35.60A	1.25A	1.40A	1.60A	1.15r	1.15r	43.95AH	12.10H	65.75H	.....	0.1978BB	0.2450BB
New Orleans	34.00	48.00	1.25P	1.35P	1.45P	1.15P	1.15P	0.463	32.88	61.24Y	72.00Y	0.2058	0.2887
New York	27.00	35.00	1.40	1.35	1.40l	1.35	1.40	0.489aT	0.2507aXAA	64.08a	72.33a	0.1670	0.2345
Philadelphia	26.50	33.00ss	1.40ss	1.25ss	1.45ss	1.05ss	1.05qqss	0.485	9.46	63.71	71.96	0.1814	0.2545
Pittsburgh	30.00nn	31.00nn	1.25nn	1.30nn	1.40mm	1.40nn	1.40nn	0.475	10.39	63.00	74.50pp	0.1600	0.1800
St. Louis uu	30 00uu	42.00uu	1.50uu	1.60uu	1.65uu	1.50uu	1.60uuY	0.479	8.77	63.39Kmmpp	69.39yuupp	0.1723fmm	0.2418fmm
San Francisco	29.50ss	30.50ss	1.35ss	1.35ss	1.50ss	1.50ss	1.58ss	0.575	10.63	65.00K	77.25K	0.1723	0.2418
Seattle	43.40nn	45.60nn	1.55nn	1.35knn	1.85nn	1.50k	....	0.50D	10.78D	54.02D	73.27D	0.1723	0.2418
Toronto	.82	1.31	1.55	1.50	1.85	1.20Q	....	0.437	26.00op	73.74	86.52	0.3063	0.3418

*‡trucklots, delivered *fob warehouse *fob city *a delivered *b ½" O.D. *c ¾" O.D. *d per sf *e 34" x 80" sheet *f per 100 ft *g 5 tons & up: cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25¢ for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l not treated with air entraining agent *m 2-10M ft *n fob mill fr equalized with nearest *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 108"; 10.81 lb/sh; 48" x 144"; 21.7 lb/sh *u 19.31 lb/sh *v f.o.b plant *w 48" x 144" *x 0.11"th *y 27 stocking competitor *z 250 sacks or more *aa 16M lb & up *bb Per 50 lb bag *dd add $1.00 cwt boxing *ee 4 tons & up *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 60.4-lb. per sh gauge *ii 16M lb & up *jj 300-bag lots *kk 100-lb bag *mm Theoretical wt; 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs. *rr less 2% disc. 15 days. *ss less 2% disc. 10 days. *tt less 2% disc. 10th. *uu add 2% sales tax. *vv Type N. *xx less ½% disc. 10 days. *yy .021 ga. *zz .081" th. *A Per 100 lb. *C 15M lb. *D less ½% for cash. *E Quantity differential. *F less 8% disc. 10th. *G less ½% disc. 10th. *H Fed. tax exempt. *K less ½%, 10 days. *L 5% disc. 30 days. *M 3003: .462 for 1100. *N less 2%, 15th mo. *O less $2, cash & carry. *P less 2%, 15 days. *Q per ton. *R revised *S add .10/bag under 200 bags. *T 5000f quantity on 4000f skids. *U 30 Msf quantity; $0.245 in 10 Msf quantity. *X per sq ft. *Y Per sheet. *Z 6,000 lb or over. *AA 30,000 sf or over. *BB Type K*



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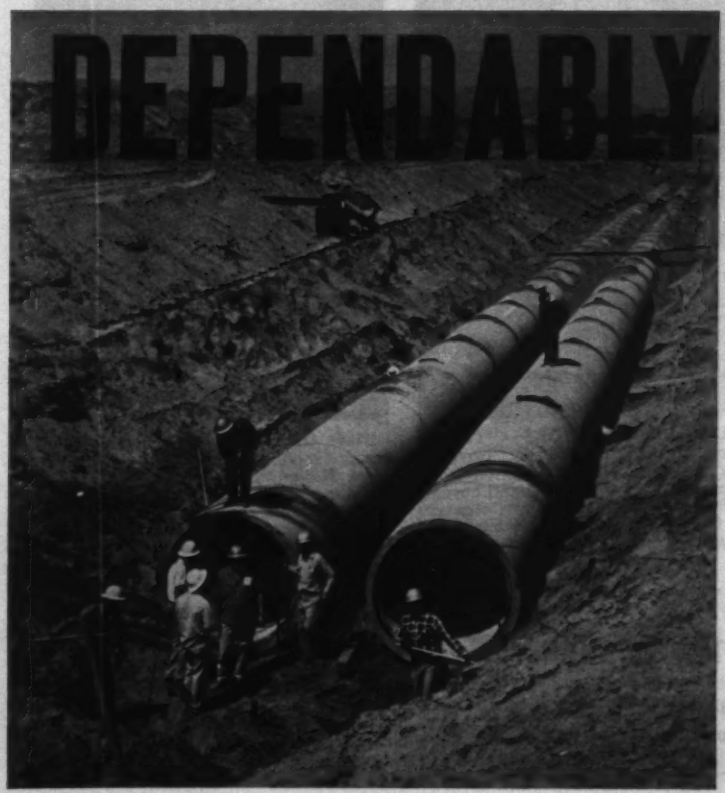

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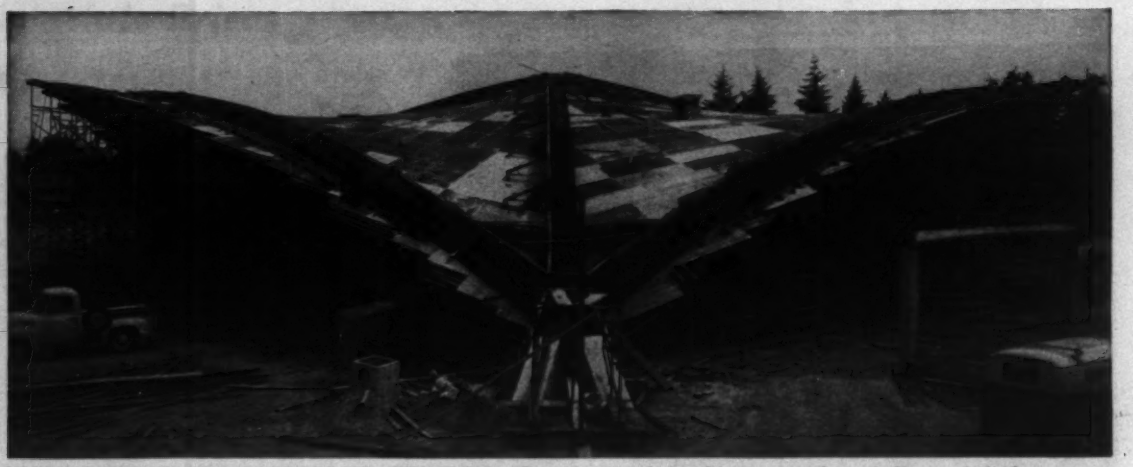
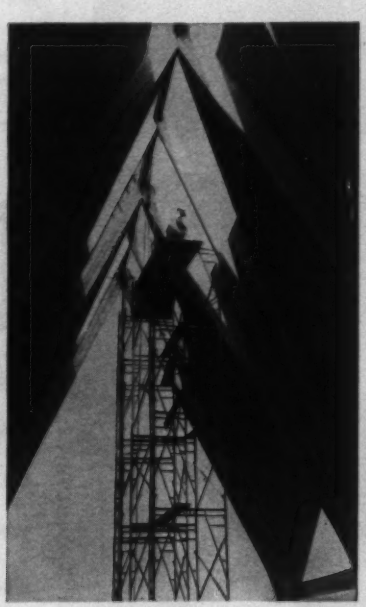


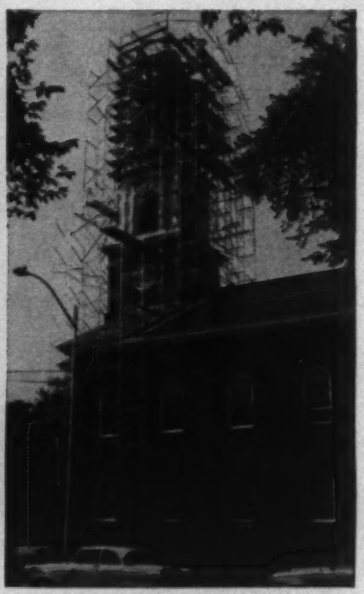
SHORING HYPERBOLIC PARABOLOID STRUCTURE—On the new auditorium for Edward S. Ingraham H. S., Seattle, Sound Construction Co., general contractor, uses 1300 standard "Trouble Saver" Shoring frames to support dome and slab formwork for this concrete hyperbolic paraboloid structure. Design involves three anchors, set 161′ apart, from which three center beams, 2′6″ x 4″, arch to 35′ high. Two perimeter beams per anchor fan out and intersect at 28′ high.

Scaffolding and Shoring Methods . . . by PS CO.

PASS BARRIERS EASILY—Special Retractable Putlogs on "Gold Medal"® Safety Scaffold Machines provide close-in working platforms and permit Scaffold to clear sun shades on new Loren Building, New Orleans, La. Quinn Construction Co., contractor.



ROLL TO UNUSUAL JOBS—"Trouble Saver" Rolling Scaffolding provides quick access to steep laminated wood bent roof for complicated hand cutting and fitting. Nelson Brothers Construction Co., contractor, Good Shepherd Lutheran Church, Des Plaines, Ill.



BUILD UP TO WORK HIGH—For steeple repairs on the United Church, New Haven, Dwight Bldg. Co., contractor, uses this "Trouble Saver" Sectional Steel Scaffolding erected rapidly from 245 frames and 30 trusses bearing on the ground and the roof.

Complete scaffolding equipment and engineering service offered through nation-wide sales offices or representatives. Look under Patent Scaffolding in the Yellow Pages for your nearest source.

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Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 2 Maine

STREETS AND ROADS

November 2, 9 Maine November 3 New Hampshire

BUILDINGS—BA

▲† **Mass., Ayer**—E. M. BARRACKS, etc.—BA On Or About 11/15—U. S. Eng., 562 Congress St., Portland, Me., E. M. barracks, consolidated mess and administration and storage buildings, Fort Devens, ENG-19-016-61-22. $1,500,000-$2,000,000. Plans deposit $10.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW HAMPSHIRE**—State Dpt. P. Wks. & Hys., Concord,

The Palazzi Corp., P. O. Box 244, Concord, N. H., CA **$1,569,132**, 1.231 mi. hot b. conc. roadway and six steel beam bridges, Manchester, Hillsboro Co. Bids Sept. 15. CD 9/21, under LB.

▲ **M. S. Kelliher Co.**, 10 Tremont St., Boston, Mass., CA **$1,757,662**, MPA 1.002 Terminal addns., passenger loading piers, General Edward L. Logan Airport, EAST BOSTON, MASS. Commonwealth of Mass., Port Auth., 141 Milk St., Boston, Mass. Bids Sept. 29, awarded Oct. 13. CD 10/3, under LB.

BUILDINGS—LB & CA

▲ **Green Manor Constr. Co., Inc.**, 382 West Middle Tpk., Manchester, Conn., LB **$1,520,875**, (8 bidders), Proj. BI-R-176, general constr. L-shaped Howell Cheney Regional Technical SCHOOL, Hilliard St., MANCHESTER, CONN. State P. Wks. Comr., 165 Capitol Ave., Hartford, Conn. Bids Oct. 13. CD 9/8.

▲ **Edwin Moss & Son, Inc.**, 555 Grant St., Bridgeport, Conn., LB **$3,148,500**, (9 bidders), six buildings NORTH DORMITORIES at Connecticut College for Women, NEW LONDON, CONN. Conn., College for Women, Mohegan Ave., New London, Bids Oct. 4, CD 9/27.

▲ **Bonvincini Building Co., Inc.**, 1500 South Main St., Torrington, Conn., LB **$1,759,000**, (8 bidders) Sunny Valley HIGH SCHOOL, NEW MILFORD, CONN. Town, Town Hall, New Milford, Conn. Bids Oct. 18, CD 10/5.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 17 New York

STREETS AND ROADS

November 1 Maryland November 10 New Jersey November 17 New York

▲ **N. Y., Rochester**—BA 10/31—Monroe County Sewer Agency, 406 Terminal Bldg., 65 Broad St., Zone 14, sanitary sewers for Gates-Chili-Ogden Sewer Dist., Section E-2, 15.2 mi. 8- to 20-in. sanitary sewers; Section K-1, 15 mi. 8- to 24-in. sanitary sewers; Section K-2, 10 mi. 8- to 15-in. sanitary sewers. (Each section may be bid separately). Plans deposit $25 for each section. Lozier Co., 10 Gibbs St., engrs. CD 3/22/57.

▲ **Pa., Natrona** — BA 11/15 — Upper Allegheny Joint Sanitary Authority, Allegheny County, at Office Chester Grove, secy., 41 Chestnut St., sewage works imprvs., Division A, 12,800 lin. ft., 15- to 30-in. rein.-con. and vitr. clay sewers, and 1,500 lin. ft. 6- to 12-in. c.i. sewers, Division B, 7,300 lin. ft. 24 in. force main, 650 lin. ft. c.i. sewers, 8,400 lin. ft., 10- to 42-in., rein.-con. and vitr. clay sewers, Division C, 1,900 lin. ft. 30 in. river crossing pipe, 19,300 lin. ft. 8- to 30-in. rein.-con. and vitr. clay sewers, 400 lin. ft. 10- to 14-in. c.i. sewers, Division D, sewage treatment plant of Intermediate Type, having nominal capacity of 6 M.G.D. and pumping station having nominal capacity of 5.4 M.G.D., consisting of five sections: Sect. 1, general constr.; Sect. 2, electrical; Sect. 3, plumbing; Sect. 4, space heating; Sect. 5, ventilation. Plans deposit $35 for Divs. A, B and C, and $85 for Div. D. Consoer, Townsend & Associates, 360 East Grand Ave., Chicago 11, Ill., and 717 Liberty Ave., Pittsburgh 22, Pa., engrs.

BUILDINGS—BA

▲ **New York**—SCHOOL—BA 11/10—Deputy Supt. Schools, Bureau Constr., 4 Floor, 42-15 Crescent St., Long Island City, Zone 1, general contract, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures Junior High School 231, Springfield Blvd. and Conduit Ave., Queens Boro. Plans deposit $35 general, $15 mechanical trades.

▲ **N. Y., Albany**—BUILDING NO. 4—BA 11/16—State Dpt. P. Wks., State Office Bldg., Albany, Building No. 4, incl. service connections, State Office Bldg. Campus Site, Spec. 15838-C-H-S-EOEL-MS. $2,500,-000-$4,000,000. Plans deposit $50 general, $30 heating, $40 electrical, $20 MS, $15 each sanitary and elevators. CD 1/15.

▲ **N. Y., South Jamaica**—SCHOOL—BA 11/17—Deputy Supt. Schools, Bureau Constr., 4 Floor, 42-15 Crescent St., Long Island City, Zone 1, general contract, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures, Junior High School 8, 108-35 167 St., Queens Boro, Plans deposit $25 general, $10 mechanical trades. CD 10/10.

▲ **N. Y., Brooklyn**—GYMNASIUM, etc.—BA 11/18—Deputy Supt. Schools, Bureau Constr., 4 Floor, 42-15 Crescent St., Long Island City, Zone 1, general contract, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures, Phase II, gymnasium, auditorium and television studio addn., George Westinghouse Vocational and Technical High School, Jay, Lawrence and Bridge Sts., Brooklyn Boro. Plans deposit $35 general, $15, heating and ventilating, $10 electrical and plumbing and drainage. CD 9/10/57.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt., State Office Bldg., Albany, Bids opened 10/20,

N. Y.—Brunalli Const. Co., 109 Summer St., Southington, Conn. LB **$4,939,509.09**, est. $5,771,000 (14 bidders), c. conc. pavt. 1.49 mi., (4.24 mi. acc.) Hy. RR gr. sep. comp. I-beam 5 sp. 300.3 ft. total, repairs to exist. bridge over D. L. & W. RR H. G. S. comp. I-beam 4 sp. 207.5 bridge-welded pl. gird., etc. Vestal-Vestal Center-Choconut SH 8331 Vestal, SH 420 Union Village, Main and Bridge Sts., SH 5412 Endicott, SH 174, Rtes. 26 & 17C, FARC 60-177, Proj. U-UG-482 (3), Broome Co.,

N. Y.—Slattery Contg. Co. Inc., 46-36 54th Rd., Maspeth, N. Y. LB **$8,809,152.90**, est. $10,439,000 (7 bidders) 9 in. cem. conc. pavt. 0.53 mi. H. G. S. comp. gird. 2 span 224.8 ft. total, etc. Interstate Rte. Conn. 511 Cross Bronx Expressway Contr. 4 (Plimpton Ave. to Walton Ave.) Rte. 95, FICBE 60-4. Proj. EI-95-1(44), 2, Bronx Co.,

N. Y.—Poirier & McLane Corp., 33 W. 42nd St., New York 36, N. Y. LB **$5,226,988**, est. $5,594,000 (4 bidders), 9 in. cem. conc. pavt. 0.98 mi. H. G. S. pl. gird. comp. I-beam 2 span 131 ft. total, viaduct comp. I-beam 8 span 595 ft. total viaduct steel beam 9 sp. 445.8 ft. total 2 ped. ramps, comp. I-beams, 8 sp. 534 ft. total Int. Rte. Conn. 517 Arthur V. Sheridan Expressway, Contr. 2 (Lowell St. to East Tremont Ave.) Rte. 278. FIASE 60-1 Proj. EI-278-1(45), Bronx Co.,

N. Y.—Peter Kiewit Sons Co., P. O. Box 224, Eastwood Station, Syracuse 6, N. Y. LB **$1,669,048.40**, est. $2,130,000 (9 bidders), b. conc. type 1A 10.38 mi. twin conc. box 2 spans 30 ft. total Red Creek-Southwest Oswego Pt. 3, SH 8214, Red Creek-Southwest Oswego, Pt. 4, SH 8189, Red Creek-Southwest Oswego Pts. 1 & 2 & 4, SH 5717, Rte. 104, R. C. 60-169, Cayuga and Oswego Counties,

N. Y.—Bero Const. Corp., Box 70, W. River Rd., Waterloo, N. Y. LB **$1,947,750.50**, est. $2,289,000 (9 bidders) 8 in. cem. conc. pavt. 7.91 mi. Old Forge-McKeever, SH 426, Rte. 28. R. C. 60-170, Herkimer Co.,

N. Y.—no bids, est. **$10,378,000**, 7½ in. rein. conc. roadway on viaduct 0.61 mi., wid'n. strengthen exist. elevated steel structures 33 spans, 294.6 ft. total Int. Rte. connection 512, Gowanus Expressway, Contr. 2 (Hamilton Ave., Clinton St. to Second Ave.) Rte. 278. FIGE 60-3. Proj. EI-278-1(54)15, Kings Co.

N. Y.—Lizza & Sons, Inc., 152 South St., Oyster Bay, N. Y. LB **$2,656,814.30**, est. $3,710,000 (8 bidders), 9 in. cem. conc. pavt. 2.67 mi. H. G. S. comp. WF beam 4 span 226.6 ft. total, H. G. S. double struct. comp. WF beam 3 span, 128.4 ft. total, Long Island Expressway, Contr. II, (Deer Park Ave. to Commack Rd.) FALIE 60-3. Proj. U-862 (28), Suffolk Co.,

N. Y.—Mount Vernon Const. Corp., 22 W. First St., Mt. Vernon, N. Y. LB **$3,568,666.10**, est. $4,444,-000 (10 bidders), 9 in. cem. conc. pavt. 4.65 mi. H. G. S. comp. I-beam 4 span 188.4 ft. total, H. G. S. rigid frame 1 span, 40.4 ft, bridge comp. I beam 2 spans 110.7 ft. total, Bedford-Goldens Bridge, SH 5298A, Goldens Bridge-Purdy-Croton Falls, SH 5464, Peekskill-Salem Center. Pt. 2, SH 252. Rte. 22, R. C. 60-168, Westchester Co. CD 9/16.

▲ **NEW YORK**—State Hy. Dpt., State Office Bldg., Albany, bids opened 10/20,

N. Y.—A. E. Ottaviano Inc., 80 Brook St., Croton-on-Hudson, N. Y. LB **$5,557,805.29**, est. $7,491,000 (5 bidders), railroad relocation 3.14 mi., 2.85 mi. cem. conc. pavt. 5 HG seps. and 2 RR plate girder bridges New York City Erie and Niagara Jct. RR in Niagara Falls and town of Niagara PSC 6607, Niagara Co. CD 9/16.

▲ **Andrew Catapano Co., Inc.**, 88-43 76 Ave., Glendale, N. Y. and **Grow Constr. Co.**, Inc., 313 W. 53 St., New York 19, N. Y., LB **$6,356,468**, (4 bidders), Contr. 5, South Branch Intercepting Sewer, west side, West. St. for Newtown Creek Pollution Control Proj., Manhattan and Brooklyn Boros, BROOKLYN, N. Y. Dpt. P. Wks., Rm. 1800L, Municipal Bldg., New York 7, N. Y. Bids Oct. 10. CD 9/14.

▲ **Hendrickson Bros. Inc.**, 63 No. Central Ave., Valley Stream, N. Y., CA **$1,684,732**, Contr. 1002-2-RU-2, 19 mi. lateral sewers, 8 mi. house connections, Sewage Collection Dist. 2-RU, Roosevelt and Uniondale MINEOLA, N. Y. Bd. Supervs. Nassau Co., Franklin Ave., Mineola, N. Y. Bids Sept. 27, awarded Oct. 19. CD 9/30, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 10/13,

Yonkers Contg. Co., 969 Midland Ave., Yonkers, N. Y., LB **$3,454,000**, (6 bidders), grading, paving 3 mi. westerly extension Rte. 80 Freeway from Landing Rd. in Mt. Arlington Boro to Rte. 46 near Love Lane, Mt. Olive Twp., Morris Co. CD 9/26.

BUILDINGS—LB & CA

▲ **John W. Rouse Corp.**, Gouverneur, N. Y., CA **$2,-243,243**, est. $4,000,000, general contract INDUSTRIAL and FINE ARTS BLDG., Buffalo State University, BUFFALO, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids Sept. 7. CD 9/12, under LB.

▲ **Colmar Constr. Co. Inc.**, 364 Gold St., Brooklyn, N. Y., CA **$1,947,000**, general contract JUNIOR-SENIOR HIGH SCHOOL, COMMACK, N. Y. Bd. Educ. Union Free School Dist. No. 10, Jericho Turnpike, Commack, N. Y. Bids Sept. 16, awarded Oct. 17. CD 10/3, under LB.

▲ **Humphries & Harding, Inc.**, 420 Lexington Ave., New York 17, N. Y., CA Est. **$2,000,000** general contract 1 story, 93,500 sq. ft. brick, concrete DEPARTMENT STORE and 22,000 sq. ft. SERVICE BLDG., HUNTINGTON, N. Y. Sears Roebuck & Co., 1601 N. Harlem, Chicago, Ill. Francis X. Gina Assoc., 219 E. 44 St., New York, N. Y., archts. Syska & Hennessy, Inc., 219 E. 44 St., New York, N. Y., mechanical engr. CD 5/4.

▲ **William L. Crow Constr. Co.**, 101 Park Ave., New York 17, N. Y., CA Est. **$8,000,000**, ENGINEERING BLDG., Proj. 2026, PRINCETON, N. J. Princeton University, Princeton, N. J. Bids Sept. 29, awarded Oct. 18. CD 9/2.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported n low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

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First used by Dravo Corporation in construction of the New Cumberland Dam at Stratton, Ohio, these new Heppenstall Tongs make the initial pull without manual attachment to the piling. Suspended from a piling extractor with jaws locked open, the Tongs are lowered over the piling. Slackening the control line disengages a retaining pin, which closes the Tongs. A wedge action causes the jaws to grip tighter as pull is increased. When the line is pulled, the jaws again latch open ready for the next piling.

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CEMENT GUN COMPANY

▲ **Colmar Constr. Co.**, 364 Gold St., Brooklyn 1, N. Y., LB $1,531,000, (14 bidders), general contract ELEMENTARY and JUNIOR HIGH SCHOOL, ISLAND PARK, N. Y. Bd. Educ. Union Free School Dist. 31, Island Park, N. Y. Frank C. Loguidice, 128 Lincoln Ave., Island Park, N. Y., structural engr. Albert Fentziaff, 111 Broadway, New York 6, N. Y., mechanical engr. Bids Oct. 11. CD 8/19.

▲ **Diesel Constr. Co.**, 24 W. 58 St., New York 19, N. Y., CA Est. $1,750,000, APARTMENT, 73-77 W. 55 St. and 1360-1366 Sixth Ave., NEW YORK, N. Y. Gallery House, Inc., 60 E. 42 St., New York 17, N. Y. Horace Ginsbern & Assocs., 205 E. 42 St., New York, N. Y., archts. Greenhut & Taffel, 114 E. 32 St., New York 16, N. Y., structural engrs. Allan Rogers, 45 Fifth Ave., New York 3; N. Y., mechanical engr. CD 10/19/59.

▲ **Guidera & Goodman**, 151 North Dean St., Englewood, N. J., Owner Builds, $8,500,000, 18 story, 556-room 175 x 200 ft. MOTEL, incl. 3 level parking GARAGE, swimming pool, W. 57 St. between 9 and 10 Aves., NEW YORK, N. Y. Max M. Simon, 1841 Broadway, New York 23, N. Y., archt. Green Hut & Taffel, 114 E. 32 St., New York 16, N. Y., structural engrs. Ian Grad, 114 E. 32 St., New York 16, N. Y., mechanical engr.

▲ **Vermilya-Brown Co., Inc.**, 100 E. 42 St., New York 17, N. Y., LB $2,747,000, (10 bidders), Samuel J. Wood LIBRARY and RESEARCH BLDG., 1300 York Ave., NEW YORK, N. Y. Cornell University Medical College, 1300 York Ave., New York 13, N. Y. Bids Oct. 11. CD 9/15.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 1, N. Y., LB $2,540,000, (4 bidders), general contract JUNIOR HIGH SCHOOL 27, northeast corner of Clove Lakes Pl. and Elizabeth Sts., Richmond Boro, WEST NEW BRIGHTON, N. Y. Deputy Supt. Schools, Office Bureau Constr., 4th Floor, 42-15 Crescent St., Long Island City 1, N. Y. Bids Oct. 13. CD 9/26; **H. Sand & Co.**, 11 Park Pl., New York 7, N. Y., LB $419,240, (2 bidders), heating and ventilating Junior High School 27 (West New Brighton, N. Y.).

▲ **Kaslow & Jeffrey Inc.**, Chatham, N. J., CA Est. $1,500,000, 132 unit APARTMENT, off Morris Turnpike, MILLBURN, N. J. Short Hills Apartments, Inc., 80 Morris Ave., Springfield, N. J. Wm. Chirgotis, 80 Morris Ave., Springfield, N. J., archt. CD 7/22.

▲ **Wm. L. Blanchard Co.**, 45 Poiner St., Newark, N. J., CA Est. $3,000,000, 163,000 sq. ft. OFFICE, Broad and Fulton Sts., NEWARK, N. J. 570 Broad St. Corp., 45 Poiner St., Newark, N. J. Frank Grad & Sons, 11 Commerce St., Newark, N. J., engrs. CD 4/23/58, under Mutual Benefit Life Insurance Co. as Owner.

▲ **John McShain, Inc.**, 1750 N Olden Ave., Trenton, N. J., CA Est. $2,000,000, ADMINISTRATION BUILDING, PRINCETON, N. J. American Cyanamide Co., 30 Rockefeller Plaza, New York, N. Y. Voorhees Walker, Smith, Smith & Haines, 101 Park Ave., New York, N. Y., archts.

▲ **Wulster & Wulster**, P.O. Box 351, Rte. 17, Ramsey, N. J., Owner Builds, $2,500,000, 55 addnl. HOUSES, West Saddle River Rd., UPPER SADDLE RIVER, N. J. Rudolph Bolling, 40 Carol St., Ramsey, N. J., archt.

▲ **Jean Chalemian**, 225 Spring Valley Rd., Paramus, N. J., Owner Builds, $1,500,000, 45 HOUSES, Pompton and Pine Lakes, WAYNE, N. J. Kordys & Oldzley, 1379 Hamburg Turnpike, Wayne, N. J., archts.

▲ **E. I. du Pont deNemours & Co. Inc.**, duPont & deNemours Bldg., Wilmington, Del., Owner Builds, 3 story, brick, and porcelain enamel PHYSICAL RESEARCH LABORATORY, at Dupont Experimental Station, WILMINGTON, DEL.

▲ **Magazine Brothers**, 733-15th St., N.W., Wash., D. C., CA Est. $2,400,000, 9 story, 195 units, masonry, APARTMENT BLDG., 1545-18th St., N.W., WASH., D. C., 18th and Q Street Associates, 733-15th St., N.W., Wash. Corning, Moore, Elmore & Fischer, 1302-18th St., N.W., Wash., D. C., archts.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
November 4 Kentucky

STREETS AND ROADS
November 4 Kentucky

▲† **Va., Langley Field**—HIGH TEMPERATURE STRUCTURE TUNNEL—BA 11/7—Contracting Officer, National Aeronautics & Space Admin., Langley Air Force Base, 8 ft. high temperature structure tunnel, NASA Spec. L-1140, IFB L-1140. $1,500,000. Extended date. CD 9/13.

▲ **Fla., Miami**—BA 11/10—Inter-American Center Authority, 3rd Floor New Terminal Bldg., Miami International Airport, clearing, dredging, filling and bulkheading, Graves Tract—Hy. 1 & NE 163 St. for Inter-American Cultural & Trade Center, $6,400,000. Plans deposit $50. Rader & Assocs., 100 S. Biscayne Blvd., archts. and engrs. CD 3/4/52, under Commercial Bldgs.

▲ **W. Va., South Charleston**—BA 12/8—City, City Hall, sanitary sewerage imprvs., Contracts X, XI, XII, XIII, XIV and XV. Howard K. Bell, 553 S. Limestone St., Lexington, Ky., consult. engr. CD 8/8.

BUILDINGS—BA

▲ **Fla., Clearwater**—DEPARTMENT STORE—BA 11/9—Allied Stores, Inc., 401 5th Ave., New York, N. Y., (selected list of bidders), 90,000 sq. ft. department store. $1,500,000. Gamble, Pownall & Gilroy, 1407 E. Las Olas Blvd., Fort Lauderdale, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Boh Bros. Constr. Co.**, Box 19144, New Orleans, La., LB $1,766,149 (4 bidders), Contr. 5908-A, sewage collection sys. and force mains, BOGALUSA, LA. City, City Hall, Bogalusa, La. Bids Oct. 11. CD 9/21. **Gurtler, Hebert & Co., Inc.**, Box 8066, New Orleans, La., LB $293,211, Contr. 5908-B, pumping stations and treatment facilities (Bogalusa, La.).

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort, Bids opened 10/14,

Ky.—**Ralph E. Mill**, 410 Ann St., Frankfort, Ky. and **Talbott Constr. Co.**, 20 Wall St., Winchester, Ky., LB $1,717,479, (11 bidders), c. conc. Class I surf. 3.093 mi. Covington-Lexington-Tennessee State Line Rd. from Ky. 388 to south end of Clays Ferry Bridge, I-75-4(4)95, SP 76-831, Madison Co. CD 9/21;

Ky.—**R. C. Durr**, Rte. 1, Walton, Ky., LB $1,275,062, (10 bidders), grade, drain 6.344 mi. Winchester-Prestonsburg, EK1-2, Clark Co.;

Ky.—**T. C. Young Constr. Co.**, Box 297, Williamsburg, Ky., LB $97,048, (6 bidders), grade, drain, b. conc. 0.802 mi. Buckhorn-Chavies, SP 97-982 SP 97-12, Perry Co. CD 9/29.

BUILDINGS—LB & CA

▲ **Portsmouth General Hospital Inc.**, Leckie St., Portsmouth, Va., rejected bids Sept. 20, Portsmouth General HOSPITAL addn., alterations PORTSMOUTH, VA. LB $2,119,000. Will re-advertise. CD 9/26.

▲ **Frank J. Rooney, Inc.**, 5880 N.E. 4th Ave., Miami, Fla., CA $3,100,000, 104 units 2 APARTMENTS and swimming pool, Treasure Island, Caribbean Towers, NORTH BAY VILLAGE, FLA. River Road Corp., c/o Giller, Payne & Waxman, archts., 4100 N. Miami Ave., Miami, Fla. CD 9/13.

▲ **R. M. Thompson**, 712 Grand Central Ave., Clearwater, Fla., CA Est. $4,000,000, 240,000 sq. ft. North Gate Plaza SHOPPING CENTER, ORLANDO, FLA. A. K. Fekany, 465 Lakefront Blvd., Winter Park, Fla.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 15 Wisconsin

STREETS AND ROADS

November 2 Michigan **November 15 Wisconsin**

▲ **Ill., Chicago**—FREIGHT BLDGS.—BA 11/3—Dpt. Purchases, City Hall, Zone 2, No. 80.85-60-118, two air-freight bldgs., Chicago-O'Hare International Airport, Park Ridge. $1,500,000. CD 10/23/59.

BUILDINGS—BA

▲ **O., Cincinnati**—MOTEL—BA 11/2—Carrousel Motel, Inc., Reading Rd., first section motel expansion, Total est. $4,000,000. Pansiera & Dohme, 3157 Woodford St., archts. CD 8/1.

▲ **O., Columbus**—SCHOOL—BA 11/10—Bd. Educ., 270 E. State St., Walnut Ridge Junior-Senior High School, near Livingston Ave. and Lattimer Dr. $1,750,000. David Schackne, Jr., c/o owner, archt. CD 5/13.

▲ **O., Mansfield** — HOSPITAL — BA 11/22 — Mansfield General Hospital, 335 Glessner Ave. (selected list of bidders), hospital addn. $2,000,000. Dan S. Carmichael, 5 E. Long St., Columbus, and Herbert Jones, 3 N. Main St., Mansfield, archts. CD 3/28.

BUILDINGS—SLC

▲ **Ill., Decatur**—WAREHOUSE AND OFFICE—Mueller Co., 512 Cerro Gordo St., soon lets contract mfg. warehouse expansion, office, $5,000,000. Sverdrup & Parcel Engineering Co., 912 Olive St., St. Louis 1, Mo., consult. engr. CD 4/20.

▲ **O., Akron**—WAREHOUSE and PARKING FACILITIES—A. Polsky & Co., High and State Sts., soon lets contract warehouse and parking facilities. $3,000,000. Tuchman & Canute, 777 Market St., Akron, O., and John Graham & Assocs., 444 5th Ave., New York, N. Y., archts. CD 7/15.

HEAVY CONSTRUCTION—LB & CA

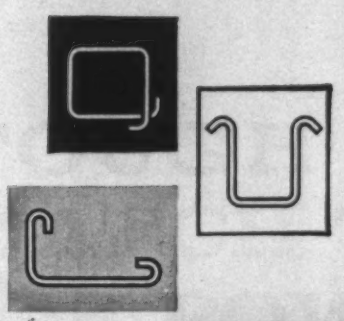
▲ **OHIO**—State Hy. Dpt., State Dpts. Bldg., Columbus, Zone 15, Bids opened 10/11,

O.—**The Horvitz Co.**, 4375 E. 146th St., Cleveland, O., LB $5,633,712, est. $6,272,000, (5 bidders), Type T 71, structures 2.811 mi. State Rte. 2-24.33, I 90-1 (29)11 U 329(22) (Cities of Cleveland and Euclid) Proj. 708, Cuyahoga Co.;

O.—**W. L. Johnson Constr. Co. & Assocs.**, P.O. Box 6688, Bexley Sta., Columbus, O., LB $1,375,220, Est. $1,651,300, (9 bidders), Type T 35 and structure 12.153 mi. USR 33-31.33 (0.00-9.57) Village of Marysville, Proj. 715, Logan and Union Counties. CD 9/22.

▲ **Square & Marra Constr. Co.**, 5101 Praha Ave., Cleveland 27, O., LB $2,220,701 (3 bidders), sewage disposal system Contract B-Diversion Conduit, WAR-

(Continued on page 74)



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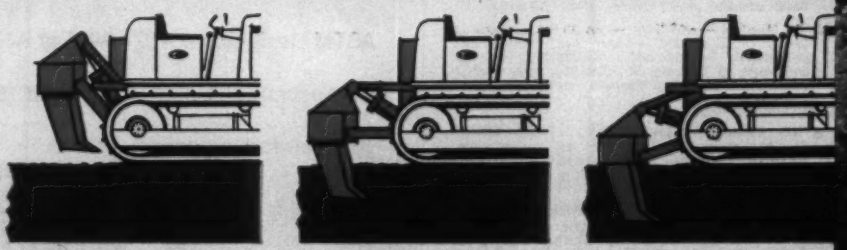
The unique parallelogram design of Allis-Chalmers rippers keeps shanks at the most effective angle . . . up . . . halfway down . . . down full depth.



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Allis-Chalmers rear-mounted rippers maintain most effective penetration angle at all depths . . . up front, specially designed bulldozers make most of HD-21's tremendous power.

Modern tractor power, *plus* modern ripper and dozer design, is making a big difference on today's tough jobs. With the HD-21 and ripper, for instance, up to 60,000 pounds of drawbar pull let you rip 'n' doze what you once shot and shoveled . . . puts one man, one modern machine in place of a typical 4-man blasting operation.

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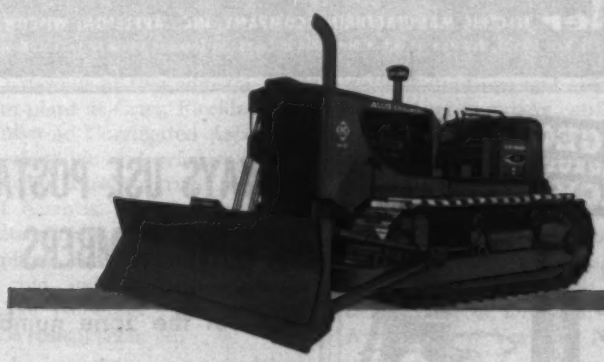
In addition, Allis-Chalmers dozer design utilizes the latest developments in steel to produce durability which makes the most of today's big tractor power without profit-killing maintenance and repair. Trunnions, "C" frames, struts and moldboards match the HD-21's brute strength. If you're bidding or working *any* tough materials, your Allis-Chalmers dealer will furnish all the facts on successful ripper/dozer application. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.



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(Continued from page 71)

REN, O. City, City Hall, Warren, O. Bids Oct. 7. CD 9/20.

Kassouf Constr. Co., 9715 Clinton Rd., Cleveland, O., LB $2,113,792, Contract B, using alternate material for sewage disposal system Contract B-Diversion Conduit (Warren, O.).

Christopher Constr. Co., 3150 Valleyview Dr., Columbus, O., LB $2,441,289 (3 bidders), sewage disposal system Contract C, Mahoning River Interceptor Sewer (Warren, O.).

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg. Lansing,

Mich.—**Kenny Constr. Co.**, 408 Moss Ave., Indianapolis, Ind., CA $3,952,031, 4.63 mi. grading, drain US 131 in and near Grand Rapids, Kent Co.;

Mich.—**Thornton Constr. Co.**, Hancock, Mich., CA $958,- grading, drainage, b. conc. 4.14 mi. I-75 (US 27 from Higgins Lake State Park Rd. north in Roscommon City, Roscommon Co.; CA $1,281,016, grading, drainage, dual b. conc. surf. 6.27 mi. US 27 from south of city line north, Roscommon and Crawford Counties;

Mich.—**C. F. Replogle Co.**, Circleville, O., CA $3,589,224 grading, drainage, b. conc. 4.14 mi. I-75 (SE 27 relocated) from proposed M-68 north, incl. seven bridges, Cheboygan Co.;

Mich.—**Cooke Contg. Co.**, 1116 Penobscot Bldg., Detroit, Mich., CA $2,376,634, grading, drainage, dual conc. surf. 6.42 mi. and two bridges US 10 from M-18 northwest to city line, Midland Co.;

Mich.—**Sargent Constr. Co.**, 2840 Bay, Saginaw, Mich., CA $3,084,053, 8.3 mi. freeway incl. four structures from Midland-Isabella County line across Isabella County to US 27 freeway connection at Clare, Isabella and Clare Counties;

Mich.—**Gilliland Constr. Co.**, RFD 2, Alpena, Mich., CA $1,192,456, 12.75 mi. reconstr. M 64 incl. grading, drainage structures and surf. from Posen in Presque Isle County south to Lachine in Alpena Co., Alpena and Preaue Isle Counties;

Mich.—**Smith Brothers Excavating**, Cassopolis, Mich., CA $648,087, 5.5 mi. M 68 from point about 1 mi. west of Afton westerly to Int. Rte. 75 (US 27 Freeway) 1 mi. south of Indian River, Cheboygan Co. Bids Oct. 5 Awarded Oct. 18 Grand total $17,082,499. CD 10/11, under LB.

▲ **Kenny Constr. Co.**, 3220 Oakton St., Skokie, Ill., CA $2,035,925, No. 066-1315-CF, c. con. paving, bit. paving, 13.230 ft. 10- to 30-in. storm sewers, CHICAGO, ILL. Bd. Comrs. Cook Co., County Bldg., Chicago 2, Ill. Bids Oct. 4, awarded Oct. 17. CD 10/11, under LB.,

Rock Road Constr. Co., 5935 N. Rogers Ave., Chicago, Ill., CA $1,631,626, No. 267A-0101.9 CF, dual concrete paving, storm sewers, (Chicago, Ill.).

▲ **William E. Schweitzer & Co.**, 2207 Dodge St., Evanston, Ill., LB $1,708,700, Delta Air Line Hangar, O'Hare Field, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago, Ill. Bids Oct. 17. CD 9/28.

BUILDINGS—LB & CA

▲ **Jewel Homes**, 3497 E. Livingston St., Columbus, O., Owner Builds, $5,600,000, $750,000 1st year (3 to 4 year program) 350 brick HOMES, between Rte. 161 and Morse Rd., Salem Village, Columbus, O.

▲ **Marvin Helf, Inc.**, 10001 Carnegie Ave., Cleveland 6, O. Owner Builds, $4,500,000, 13 story, 254 suite APARTMENT, Terrace Rd. and Forest Hill Blvd., EAST CLEVELAND, O. CD 9/30/58, under Coventry Park Co., Inc., 15103 Euclid Ave., Cleveland 12, O., as owner.

▲ **Coral Homes, Inc.**, 4275 Pearl Rd., Cleveland 9, O., Owner Builds, $2,000,000, 105 HOMES, east side York Rd., south of Bobko Blvd., PARMA, O.

▲ **Metcalf Constr. Co.**, 105 S. LaSalle St., Chicago, Ill., CA Est. $2,000,000, GRAIN ELEVATOR imprvs., waterfront near Fassett St. Bridge, incl. 1.2 million bu. elevator, 40 truck loading platform, TOLEDO, O. Mid-States Terminals, Inc., Bd. of Trade Bldg., Toledo, O. CD 6/17.

▲ **Gust K. Newberg Constr. Co.**, 2040 N. Ashland Ave., Chicago, Ill., CA $17,483,000, Ill. 237, Stage 3, 1,262 unit Robert R. Taylor HOUSING Proj., COMMUNITY CENTER, CENTRAL HEATING PLANT, MAINTENANCE BLDG., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 5, Ill. Bids Oct. 11, awarded Oct. 13. CD 10/13, under LB.

▲ **Gust K. Newberg Constr. Co.**, 2040 N. Ashland Ave., Chicago, Ill., LB $14,487,000 (5 bidders). Proj. 2-37, Stage 2, Robert Taylor HOMES CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 5, Ill. Bids Oct. 18. CD 9/29.

▲ **Vanderbilt Custom Builders & Kent Realty Co.**, 1842 Delmar Ave., Granite City, Ill., Owner Builds, Total est. $2,000,000, $500,000 1st year, (four to five year program) 250 brick residences, concrete street and sidewalks, sanitary and storm sewers, Devonshire Subdivision adjacent to Edgewood and St. Clair Sts., GRANITE CITY, ILL.

▲† **MacDonald Constr. Co.**, 1310 S. Grand St., St. Louis, Mo. LB $8,973,182 (7 bidders), MAXIMUM SECURITY PENITENTIARY, for Bureau Brisons, MARION, ILL. General Services Admin., 219 S. Clark St., Chicago, Ill. Helmuth, Obata & Kassabaum, Inc., 315 N. 10th St., St. Louis, Mo., archts. Bids Oct. 10. CD 9/7,

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 1 Iowa
November 3 Kansas
November 9, 10 Texas

STREETS AND ROADS

November 1 Iowa
November 3 Colorado, Kansas
November 4 Minnesota
November 9, 10 Texas

▲† Minn., Minneapolis—BA About 11/29—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, alterations Great Northern Stone-Arch Bridge over Mississippi River, St. Anthony Falls Proj., CIVENG-21-018-61-10. $1,500,000. Plans deposit $4.20.

▲ Texas — BA 11/30 — West Central Texas Municipal Water Dist., Abilene, earthern dam and reservoir on Hubbard Creek, near Breckenridge. $14,400,000. Freese, Nichols & Endress, 407 Danciger Bldg., Fort Worth, engrs. CD 9/1/59.

▲† Minn., Minneapolis—BA About 12/20—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, alterations to Great Northern Stone-Arch Bridge over Mississippi River, St. Anthony Falls Proj. CIVENG 21-008-61-10. $1,500,000. Plans deposit $4.20. CD 10/19.

▲† Kan., Wichita—TITAN II MISSILE FACILITY—Bids Asked—U. S. Eng., Ballistic Missile Constr. Office, Air Force Unit P.O., Los Angeles 45, Calif., Titan II Missile facility near McConnell Air Force Base, incl.

Phase 1, 18 launch facilities with 120 ft deep underground launch silo, control center building, access portal, blast lock and cableway, 100,000 underground water tank, supply lines, access road, drainage. $30,000,000. Contractors must pre-qualify by Oct. 25.

Plans for Phase 2, structural and mechanical work will be available Oct. 31 and bids will be asked early 1961. CD 4/27.

BUILDINGS—BA

▲ Okla., Tulsa—SCHOOL—BA 11/29—Bd. Educ., 410 S. Cincinnati St., Memorial High School, $1,800,000. Plans deposit $100. Black & West, Tri-State Insurance Bldg., archts. CD 6/10/59.

▲ Tex., Texas City—REFINERY UNIT—Bids Asked—Plymouth Oil Co., Benedum Trees Blvd., Pittsburgh, Pa., hydeal refinery unit to produce 15 million gal. benzene annually. $2,000,000. CD 10/17.

HEAVY CONSTRUCTION—LB & CA

▲ KANSAS—State Hy. Comn., Kansas City, L. G. Barcus & Sons, Inc., 1430 State Ave., Kansas City, Kan., CA $1,678,625, (5 bidders), structural approaches, Br. No. 70-105-17.6, for west end of Intercity viaduct on Int. 70 in Kansas City, Kan. Co. Proj. 70-105 I 70-6(13) 423, Wyandotte Co. Bids Oct. 7. CD 9/19.

▲ TEXAS—State Hy. Comn., Austin, Bids opened Oct. 18,

Tex.—W. R. Aldrich & Co., Box 1751, Baton Rouge, La., LB $1,504,596, grading, strs., A.C.P., st., sew and conc. pvt., 1.297 mi., Hwy. St. 146, Proj. F 1081(9), Harris and Galveston Counties;

Tex.—J. O. Boswell & Sira & Payne, 311 Paris Ave., Lubbock, Tex., LB $1,447,477, grading, stab. subgr., strs., fl. base and b. conc. 4.026 mi. Hy. U.S. 87, Proj. F 546(28) and (29), Hale and Lubbock Counties;

Tex.—R. B. Butler, P.O. Box 471, Bryan, Tex., LB $1,042,073, grading, strs., 8.074 mi. Hy. IH 20, Proj. I 20-6(22), 529, Van Zandt Co. CD 10/31.

BUILDINGS—LB & CA

▲ H. J. Bjornsen, 721 Staub Court, N. R. Cedar Rapids, Iowa, Owner Builds, $2,000,000, eight, 100 unit, brick, concrete North Towne Garden APARTMENTS, swimming pool, 42nd St. and Center Pond Rd., N.E., CEDAR RAPIDS, IOWA.

▲ Ebasco Services, Inc., No. 2 Rector St., New York, N. Y. CA Est. $2,360,000, design and construct THERMIAL POWER PLANT, boiler, turbo-generator, near SALIX, IOWA. Iowa Public Service Co., 502 6th St. and P. O. Box 778, Sioux City, Iowa.

▲ MacDonald Inter-American Corp., 1320 S. Grand Blvd., St. Louis 4, Mo., CA Over $2,000,000, 3 story SHOPPING CENTER, to incl. 75,000 sq. ft. JUNIOR DEPARTMENT STORE, 25,000 sq. ft. FOOD STORE, 15,000 sq. ft. DRUG STORE, etc., 1,500 car parking, Natural bridge and Lucas and Hunt Rds., NORTHWOODS (ST. LOUIS 20 P.O.), MO. Bach Industries, Inc., 7506 Natural Bridge Rd., St. Louis County 21, Mo. and Simcock Realty Co., 6379 Clayton Rd., Clayton 17, Mo. Rathert & Roth, 4401 Hampton Ave., St. Louis 10, Mo., archts. CD 3/10, under Mo., St. Louis County.

▲ Fogerty Building Co., 70 Bellerive Acres, Normandy 21, Mo., Owner Builds, Total cost $2,000,000 (4-5 Year Program) First Year $500,000, 140 RESIDENCES, Northgate Estates Subdivision on Claudine Dr., SPANISH LAKE (ST. LOUIS 38 P. O.), MO.

▲ McCarthy Bros. Constr. Co., 4903 Delmar Blvd., St. Louis 8, Mo., CA $2,000,000, addns. to St. Mary's College, incl. POWER PLANT and tunnel, 1 story, 64x73 ft., 2 story, 32x77 ft. Berchman HALL addn., 3 story, 68x183 ft. Meade HALL, SCIENCE BLDG. addn., DINING HALL and KITCHEN BLDG., Miege HALL alterations, roadways, parking areas, XAVIER, KAN. St. Mary's College, Sisters of Charity of Leavenworth, Xavier, Kan. Bids Sept. 29, awarded Oct. 11. CD 9/29.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

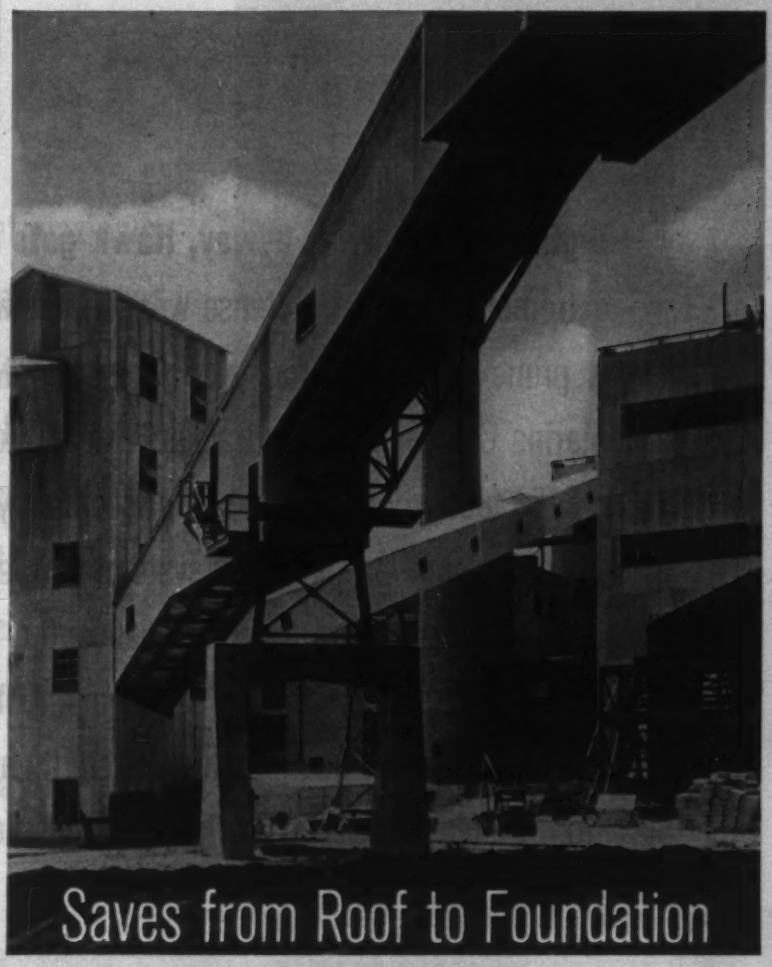
BRIDGES

November 16, 25, 30 December 6 California

STREETS AND ROADS

November 3 Nevada November 16, 17, 23 California

(Continued on page 78)



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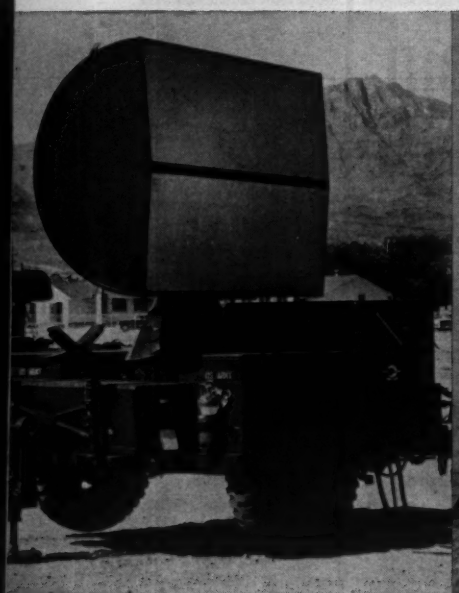
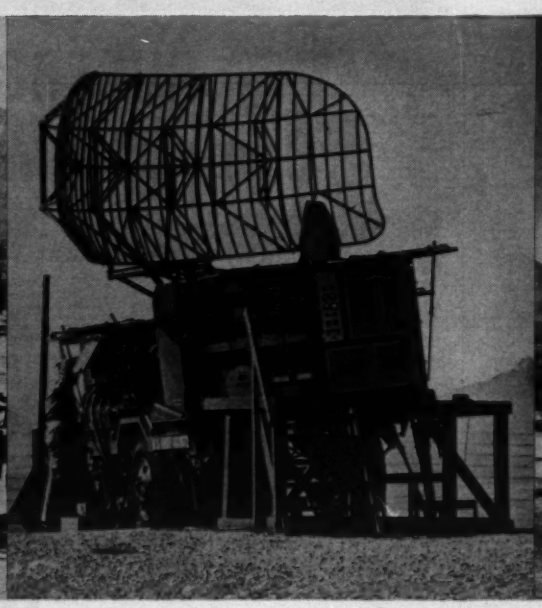
Highway, skyway or byway, Hawk gets there fast—The Army's extremely mobile air defense weapon, for which Raytheon Company is prime contractor, has also been adopted for use by the U. S. Marine Corps. Tree-top attackers are Hawk's special quarry. It uses a solid fuel propellant, and can accompany fast-moving field forces. All eleven units in the Hawk system can be transported by standard military cargo aircraft and by helicopter, rolled over the highways or over the roughest terrain. The equipment is lean and rugged, skillfully designed with carbon, high strength, and alloy steels—available from United States Steel. When your missile support system goes on



This continuous wave acquisition radar picks up targets down to tree-top levels.



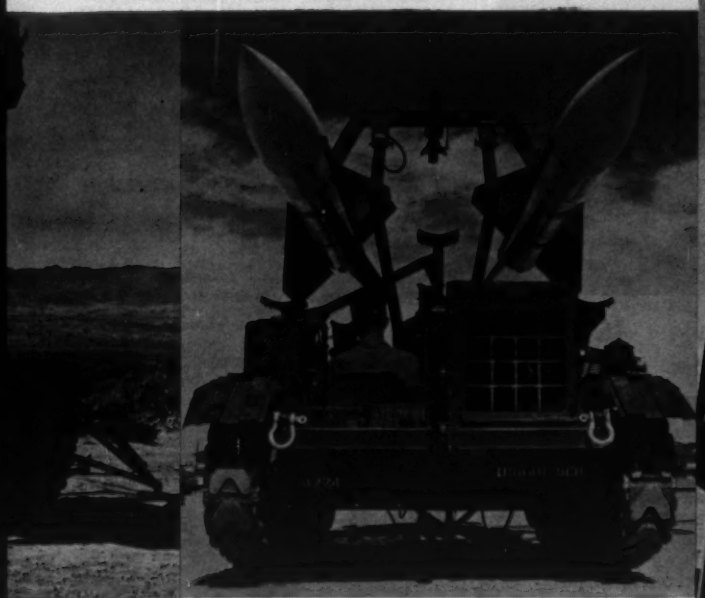
The pulse acquisition radar detects high altitude targets and provides volume coverage in support of the continuous wave radar.

Tubular outriggers give the launcher good stability with maximum weight conservation.

the drawing board, get maximum design capabilities from all ground support materials. Consult with the one producer of all these materials. Whether it's carbon steel or special constructional alloy steels, Stainless Steel, electrical cable or wire rope... consult with

United States Steel

TRADEMARK



The Loader-transporter has an extremely low silhouette. It weighs only 5,250 pounds.

This mark tells you a product is made of modern, dependable Steel.

(Continued from page 75)

▲ **Calif., Los Angeles**—BA 11/18—Los Angeles County Flood Control Dist., 2250 Alcazar St., Proj. 534, Lennox Inglewood and Hawthorne Storm Drain. $2,101,800. CD 11/10/58.

▲ **CALIFORNIA**—BA 12/6—State Div. San Francisco Bay Toll Crossings, 151 Fremont St., San Francisco, reconstr. East Bay portion of lower deck, San Francisco-Oakland Bay Bridge incl. removal of last of key sys. rails and replacing with concrete paving. $3,000,000. CD 3/18/58.

BUILDINGS—BA

▲ **Calif., Fullerton** — SCHOOL — BA 11/7 — Fullerton High School Dist., 1000 North Harvard Ave., brick, masonry Lowell high school near La Habra. $2,500,000. CD 5/16.

▲ **Calif., Sacramento**—SCHOOL—BA 11/14—Sacramento City Unified School Dist., 1619 N St., 1,000 student Fern Bacon Junior High School. $1,900,000. CD 11/12/59.

▲ **Calif., Los Angeles**—CLASSROOM BLDG. No. 1—BA 11/23—State Div. Architecture, 1100 South Grand Ave., 292,000 sq. ft., 5,000 student classroom, Bldg. No. 1, Los Angeles State College, W.O. 4304GC-26. $4,750,000. Plans deposit $300. CD 4/26/56.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, Bids opened 10/13,

Fredrickson & Watson Constr. Co., 873 Eighty-First Ave., Oakland, Calif., LB **$4,193,239**, (5 bidders), 3.9 mi. 4 lane freeway approach to Benicia-Martinez Bridge from North End, incl. 9 traffic separation bridges, North Bridge abutment and Bridge Toll Plaza, Solano Co. CD 9/14.

▲ **CALIFORNIA**—State Div. San. Francisco Bay Toll Crossings, 151 Fremont St., San Francisco,

Charles F. Harney, Inc., 575 Berry St., San Francisco, Calif., CA **$3,370,287**, reconstr. San Francisco-Oakland Bay Bridge Tunnel, Yerba Buena Island converting railroad deck to vehicular traffic, San Francisco Co. Bids Oct. 11, awarded Oct. 14. CD 10/17, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Madonna Constr. Co., P.O. Box 910, San Louis Obispo, Calif., CA **$5,606,099**, grading, paving to constr. 8.5 mi. four lane freeway US Hy. 101 between Hourihan Grade and 4 mi. south of Santa Maria to by-pass Santa Maria, incl. nine bridges, San Luis Obispo and Santa Barbara Counties. Bids Oct. 5, awarded Oct. 17. CD 10/7, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles, Bids opened 10/14,

E. L. Yeager Co., E. L. Yeager Constr. Co. Inc. and J. B. Stringfellow, P.O. Box 87, 1995 Agua Mansa Rd., Riverside, Calif., LB **$3,872,547**, (7 bidders), grading, paving to constr. 3 mi. 4 lane freeway US Hy. 60 in Riverside between Main St. and University of California, incl. 8 separation structures, Riverside Co. CD 9/12.

▲† **Payne Constr. Co.**, 689 Louisiana St., Oakland, Calif., CA **$2,246,059**, aircraft engine inspection and repair shop, ENG-61-31, HAMILTON AIR FORCE BASE, CALIF. U. S. Eng., 180 New Montgomery, San Francisco, Calif. Bids Aug. 31. (Correction—cost.) CD 9/14, under LB.

▲ **Westinghouse Electric Corp.**, 3 Gateway Center, Pittsburgh 30, Pa., LB **$1,608,000**, (4 bidders), 1 m.g.p.d. Saline Water Conversion Demonstration Plant (Multi-Stage Flash Distillation Plant), SAN DIEGO, CALIF. Saline Water Div., Dpt. Interior, C St. between 18 and 19 Sts. N.W., Wash., D. C. Bids Oct. 18. CD 8/18.

BUILDINGS—LB & CA

▲ **Henry C. Beck Co.**, 1st National Bank Bldg., Dallas, Tex., CA Total cost **$2,400,000**, First year $1,395,000, 8 story, rein.-con., steel BANK and OFFICE, SALT LAKE CITY, UTAH. D. H. Byrd Enterprises, c/o Harwood K. Smith & Partners, archts., Southland Center, Dallas, Tex. CD 6/23.

▲ **Hoffman Constr. Co.**, 715 S.W. Columbia St., Portland, Ore., CA **$2,103,560**, six 40 ft. SILOS, PACK HOUSE, OFFICE LOADING FACILITIES, CEMENT STORAGE AND DISTRIBUTION TERMINAL, West Marginal Way and Duwamish Waterway, PORTLAND, ORE. Ideal Cement Co., Denver National Bldg., Denver 2, Colo.

▲ **Gust K. Newberg Co.**, 600 S. Lafayette Park Pl., Los Angeles, Calif., CA **$3,733,500**, 9 story, rein.-con. SCHOOL and RESIDENCE NURSING SCHOOL, General Hospital, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Wilson & Williams, 816 W. 5 St., Los Angeles, Calif., archts. Bids Sept. 21, awarded Oct. 4. CD 11/9/56.

▲ **Grandview Bldg. Co.**, 470 S. Beverly Dr., Beverly Hills, Calif., CA **$2,024,700**, 116 DWELLINGS, Tract 19683, Grayslake Rd., Wildbriar, Barstone and Capeswood Drs., and Ironwood St., ROLLING HILLS, CALIF. Barstone Land Co., 470 S. Beverly Dr., Beverly Hills, Calif.

▲† **Roscoe-Ajax Constr. Co.**, 1107 19 St. N.W., Wash., D.C., and **Knickerbocker Constr. Co.**, 3 E. 54 St., New York, N. Y., LB **$32,287,000**, Base Bid, COURTHOUSE and FEDERAL OFFICE BUILDING, SAN FRANCISCO, CALIF. General Services Admin., P. Bldgs. Service, Business Service Center, 49 Fourth St., San Francisco, Calif. Bids Oct. 13. CD 9/27.

▲ **Irvin J. Kahn, Carlos Tavares & Norman Smith**, Bank of America Bldg., San Diego, Calif., Owner Builds, Total cost **$333,000,000** (10 Year Program) COMMUNITY DEVELOPMENT, 6 tracts Sans Souci Estates, Glen Oaks, Allegro Series, Berkeley Estates, Westwood Series, Ambassador Estate, 11,500 acres, 14,000 single HOUSES, 11,500 units, 6-8 story APARTMENTS, 1 HIGH SCHOOL, 3 JUNIOR HIGH SCHOOLS, several ELEMENTARY SCHOOLS, COMMUNITY CENTERS, HOSPITAL, HELIPORT, Golf Course, General ATOMIC PLANT, UNIVERSITY CITY (SAN DIEGO P.O.), CALIF. Palmer & Krisel, 3602 Midway Dr., San Diego, Calif., archts. for Sans Souci Estates and Allegro Series. David Freedman, 221 N. Robertson St., Beverly Hills, Calif., archt. for Berkeley Estates and Westwood Series. Emery Kanark, 140 N. La Brea Ave., Los Angeles, Calif., archt. for Ambassador Estates.

▲ **Hirano Brothers**, 931 University Ave., Honolulu, Hawaii, CA **$5,000,000**, general contract 250 HOMES, Waipahu Gardens Subdivision, HONOLULU, HAWAII. Dr. Wonsik You, 1282 Queen Emma St., Honolulu, Hawaii.

DORRCLONE® DEGRITTING pays off at High Point Treatment Plant, N. C.

Operating in combination with a 16' dia. Dorr Detritor®, a 12" dia. DorrClone washes 190 gpm of grit from the collecting tank underflow at North Carolina's High Point Sewage Treatment Plant. DorrClone degritting reduces subsequent treatment loads, improves overall capacity and efficiency. Equipment is simple, compact and has no moving parts. Plan above shows a typical installation. For more information, write Dorr-Oliver Incorporated, Stamford, Connecticut.

Consulting Engineer: Wm. F. Freeman Inc., High Point, N. C.
Contractor: F. L. Showalter, Inc., Lynchburg, Va.

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CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
November 16 Ontario

BUILDINGS—BA

▲ **Ont., Weston**—HOSPITAL—BA 11/17—Humber Memorial Hospital, 200 Church St., 4 story, 46x205 ft. steel frame hospital addn. $1,700,000. Plans deposit $50. John B. Parkin Assocs., 1500 Don Mills Rd., Don Mills, engrs.-archts. CD 3/24.

BUILDINGS—SLC

▲ **Que., St. Johns**—SEMINARY—Seminaire de St. Jean, Blvd. Montcalm, soon lets contract seminary addn. $2,115,000. Rene & Gerard Charbonneau, 6260 Cote Des Neiges Rd., Montreal, archts. Brouillet & Carmel, 3600 Barclay Ave., Montreal, engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **Emil Anderson Constr. Co., Ltd.**, 4482 Main St., Vancouver, B. C., and **Square M-Coleman Collieries Ltd.**, 10325 61st Ave., Edmonton, Alta., LB **$3,565,100** (9 bidders) earth embankment, forming Waterton Dam, Waterton River 3½ mi. northeast of Hillspring, ALBERTA, Prairie Farm Rehabilitation Admin., Motherwell Bldg., Regina, Sask. Bids Oct. 6. CD 9/20.

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria.
Dawson, Wade & Co., Ltd., 775 Clark Dr., Vancouver, B. C. CA $1,656,115, Contract 1123, 6.97 mi. Trans-Canada Hy., Springbrook Rd.-Halls Prairie Rd. section, Delta Electoral Dist. Awarded Oct. 6. CD 9/21, under LB.

▲ **QUEBEC**—Dpt. P. Wks., Parliament Bldgs., Quebec City. Bids opened 9/29.
Dufresne Engineering Co., Ltd., 1832 Pie IX Blvd., Montreal, Que., LB $2,308,754 (9 bidders), substructure of Honore Mercier Bridge over St. Lawrence River between LaSalle and Caughnawaga. CD 9/13.

BUILDINGS—LB & CA

▲ **Luney Bros. & Hamilton Ltd.**, 825 Bay St., Victoria, B. C., CA $1,686,000, Contract No. 3, general contract LAW COURTS BLDG., VICTORIA, B. C. B. C. Govt., Parliament Bldgs., Victoria, B. C. Awarded Oct. 5. CD 9/15, under LB.

▲ **Dinsmore Constr. Ltd.**, Box 246, London, Ont., CA Est. $9,000,000, three bonded WAREHOUSES, wharf, docking facilities, WINDSOR, ONT. Windsor Port Terminals Ltd., 182 Pitt St. W., Windsor, Ont. Johnson-McWhinnie, 1060 University Ave. W., Windsor, Ont., archt.

▲ **Robert McAlpine Ltd.**, 310 Victoria Ave., Montreal, Que., LB $3,525,000, (4 bidders), BANK and OFFICE extension, alterations, 437 St. James St. W., MONTREAL, QUE. Bank of Nova Scotia, 44 King St. W., Toronto, Ont. Durnford, Bolton, Chadwick & Ellwood, 4101 Sherbrooke St. W., Montreal, Que., archts. De Stein & Assocs., 4147 Sherbrooke St. W., Montreal, Que., engrs. Bids Sept. 30. CD 9/16.

PUERTO RICO

BUILDINGS—LB & CA

▲ **Centex International Corp., sub. Centex Constr. Co.**, 4606 Greenvale St., Dallas, Tex., U.S.A., Owner Builds, Est. $5,000,000, 800 lots for HOUSING. Bayamon, PUERTO RICO.

▲ **HRH Constr. Co.**, 16 W. 46 St., New York, N. Y., U.S.A. and **Rexach Constr. Co.**, Box 8175, Santurce, Puerto Rico, CA Est. $4,000,000, 14 story, 311 unit elliptical shaped APARTMENT, SAN JUAN, PUERTO RICO. El Monte Development Corp., San Juan, Puerto Rico. Reed, Basora & Menendez, Chase Manhattan Bank Bldg., Rio Piedras, Puerto Rico, archts.

▲ **Frank Ramirez de Arellano & Torregrosa, Inc.**, Box 485, San Juan, Puerto Rico, Owner Builds, $1,700,000, two 10 and 11 story 47 unit condominium APARTMENTS, SAN JUAN, PUERTO RICO. Toro & Ferrer, Box 9656, Santurce, Puerto Rico, archts.

AMERICANS ABROAD

▲ **Australia**—BA 12/19—Secretary, Comr. for Railways, Railways Bldg., Adelaide St., Brisbane, Mt. Isa Railway, Proj. Contr. No. 4, Burdekin River Bridge at Macrossan and approaches to include substructure and superstructure railway bridge as well as approaches and track located on Western Line of Northern Division of Queensland Government Railways approx. 70 mi. west of Townsville, consists of twelve 70 ft. through plate girder spans and six 250 ft. truss spans. Ford, Bacon & Davis, Inc., 2 Broadway, New York, N. Y., U.S.A., engr. Request for Contract Documents must be accompanied by a cheque for fifteen pounds Australian for each set requested. An addnl. charge for overseas air mail postage will be made at cost. Payment for Contract Documents is not refundable. CD 1/15.

BUILDINGS—LB & CA

▲ **Rohtas Industries, Ltd.**, Calcutta, India, CA Est. $20,000,000, PLANT to make newsprint from Bagasse, Karad, Maharashtra State, KARAD, INDIA. Crown-Zellerbach Corp., 1 Bush St., San Francisco, Calif., U. S. A., Sahu Jain Ltd., Calcutta, India, and Hawaiian Development Co., Honolulu, Hawaii, U. S. A.

▲ **Baldwin-Lima-Hamilton Corp.**, Eddystone, Pa., U.S.A., CA Total cost $10,000,000, 25,000 ton per month STEEL ROLLING MILL, KOBE, JAPAN. Kobe Steel Works, Ltd., Kobe, Japan.

▲ **Bechtel International Corp.**, 220 Bush St., San Francisco, Calif., U.S.A., CA Est. $24,000,000, REFINERY, BATANGAS, PHILIPPINES. Shell Refining Co. (Philippines), Inc.

FOREIGN

BUILDINGS—LB & CA

▲ **Holland & Hannen and Cubitts**, 1 Queen Anne's Gate, London, S.W. 1, England, CA Est. $9,800,000, steel frame structure, monitor roof with aluminum decking PLANT, incl. Assembly Shop, Ancilliary Works, Stratton St. Margaret, SWINDON, ENGLAND. Pressed Steel Co. Ltd., 169 Regent St., London, W.1, England. Harry W. Weedon & Partners, 45 Calthorpe Rd. Edgbaston, Birmingham, England, archts.

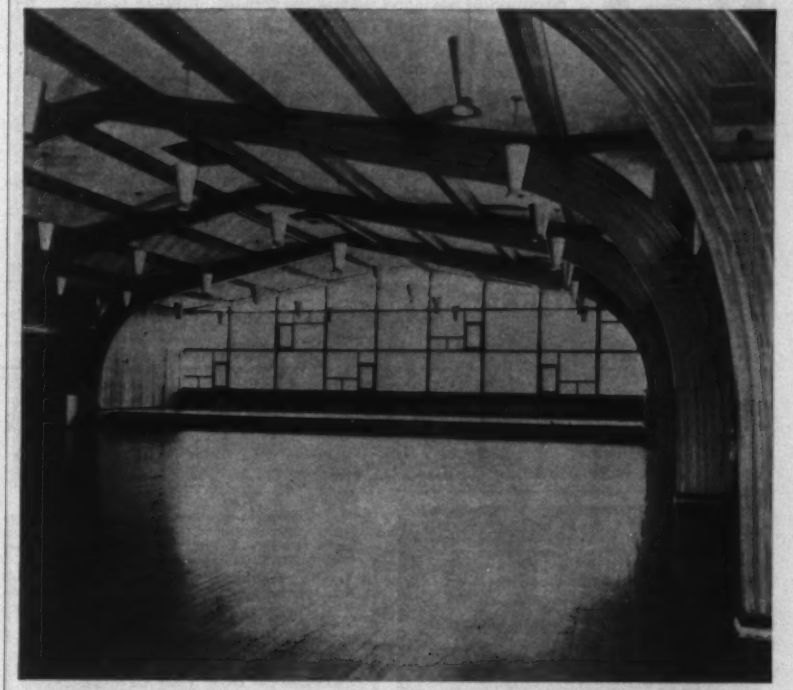
PROPOSED PROJECTS

WATER SUPPLY

▲ **Minn., Golden Valley (P. O. Minneapolis)**—Village, 7800 Golden Valley Rd., bond election Dec. 6, municipal water sys. $2,750,000.

Ballroom-lounge of Montana State Lodge, student union building of Montana State University, Missoula, Montana.

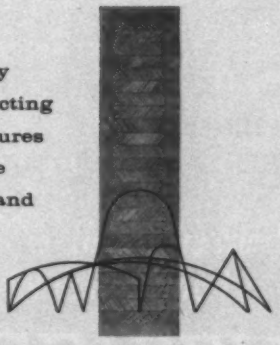
Space provided: dining room; kitchen; ballroom-lounge; offices; student organization offices and meeting rooms; rest rooms; outdoor dining patio; faculty rooms; student store. *Structural framing:* reinforced concrete for first floor; glulam timber beams and arches for second floor, spaced at 20′, with glulam purlins spaced at 6′-8″. *Exterior walls:* stone over concrete block for ground floor; wire brushed Tim-Deck applied vertically for upper floor. *Interior walls:* wood paneling in dining room, lounges and offices; structural glazed block in kitchen; painted pumice block in rest rooms. *Heating:* steam heat with direct radiation and unit heaters supplied by central heating plant. *Ventilation:* unit ventilators with unit exhausters for larger areas. *Lighting:* generally incandescent, with fluorescent fixtures in offices. *Floors:* oak for ballroom-lounge; quarry tile for kitchen, rest rooms and concourses; asphalt and rubber tile in offices and conference rooms. *Roof:* built-up roof over rigid insulation and heavy timber decking. *Area:* 78,000 square feet. *Cost:* $12 a square foot (in 1956).



see our catalog in Sweet's or write for copy

Architects: Brinkman and Lenon, Kalispell, Montana.
Contractors: Hightower & Lubrecht, Missoula.

Behind the handsome appearance of the glulam arches and purlins by Timber Structures, Inc. is an exacting program of quality control. This assures architect and owner alike that the unseen values of permanence and satisfactory performance on the job are equal to the beauty that is apparent at a glance.



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District Representatives in Major Cities throughout the United States • Member A. I. T. C. and Producers' Council

SEWERS, WASTE DISPOSAL

▲ **Ky., Lexington**—City, City Hall, (A) sewage treatment plant, (B) sanitary sewers and pumping station, Wolf Run Water Shed Area. $5,000,000. J. Stephen Watkins, 446 E. High, consult. engr. Contr. A. Howard K. Bell, 553 Limestone St., consult. engr. Contr. B. Bids in December. CD 4/12.

BRIDGES

▲ **OHIO**—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15,
Lucas Co.—superstructure for South End Bridge. $5,462,000.
Main St. interchange for South End Bridge. $1,255,000. Howard Needles, Tammen & Bergendoff, 1805 Grand St., Kansas City, Mo., engrs. Bids in Fall.

STREETS AND ROADS

▲ **OHIO**—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15,
Lucas Co.—widening 3.97 mi. Sylvania-Alexis Rd. between Secor and Telegraph Rds., 4-lane divided hy., Bypass US 24 and 25. $2,800,000. Constr. 1961.
extending Collingwood Ave. from Nebraska to Anthony Wayne Trail and from Erie St. to St. Clair. $572,900. Constr. 1961.
extending Anthony Wayne Trail from south of Swan Creek new connection with Erie and Michigan Sts. near Lafayette, US 24. $1,310,000. Constr. 1961.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Allegheny and Armstrong Counties—30 mi. section proposed Allegheny Expressway between Aspinwall and Kittanning; part of Pittsburgh-Brookville Hy. at alt. to Rte. 28, $15,000,000. CD 2/25.

▲ **ALBERTA**—Dpt. Hys., Parliament Bldgs., Edmonton, 23 mi. four-lane divided 300 ft. wide Calgary Hy. to bypass Red Deer, $7,000,000.

EARTHWORK, WATERWAYS

▲ **Ill., Evanston**—Northwestern University, 619 Clark St., 1,000 ft. bulkhead, 2,800 ft. sea wall, fill Lake Michigan at Colfax Ave. $5,200,000. Skidmore Owings & Merrill, 30 W. Monroe St., Chicago, Zone 3, archts.-engrs.

▲ **Ontario**—The Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, 5 mi. earth dyke, incl. grubbing, excavation dyke fdns., placing approx. 3,500,000 cu. yd. materials, etc., Little Long Generating Station, Kapuskasing.

AIRPORTS

▲ **Calif., San Francisco**—SATELITE BLDG., etc.—Trans-World Airlines, co Belford Brown, airport mgr., San Francisco International Airport, plans by Welton Becket & Assoc., 153 Maiden Lane, 2 story satelite bldg., concourse and 7 airplane parking areas. Over $2,000,000. Constr. 1962.

▲ **Calif., San Francisco**—PASSENGER BLDG. EXPANSION, etc.—United Air Lines, c/o Belford Brown, airport mgr., San Francisco International Airport, South San Francisco, 60,000 sq. ft. structural steel passenger bldg. expansion and addn. and second story Pier C. $2,000,000-$5,000,000. CD 8/22/55.

▲† **N. Y., Rome**—UNDERGROUND LAUNCHING SITES—U. S. Eng., 111 E. 16 St., New York, Zone 3, 18 underground launching sites, ICMB missiles, Griffiss Air Force Base. $80,000,000.

▲ **N. S., Greenwood**—HOUSING—Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, 200 unit housing for National Defence personnel of the Air Force, Royal Canadian Air Force Station. $2,000,000.

▲ **Ont., Toronto**—AIRPORT HOTEL—Renforth Developments Ltd., P.O. Box 459, Adelaide St., P.O. Toronto, plans by Max W. Roth, 1015 Sherbrooke St. W., Montreal, Que., 10 story, airport hotel, Dixon Rd. $4,000,000. Bregman & Hamann, 146 Bloor St. W., assoc archts. R. V. Anderson & Assocs., Ltd., 194 Wilson Ave., Toronto, consult. engrs.

UNCLASSIFIED

▲ **Fla., Apopka** — GAS TRANSMISSION LINES — Lake Apopka Natural Gas Dist., P.O. Box 787, natural gas transmission and distr. lines. $2,626,000. Harry Hendon & Assocs., Inc., 925 Sligh Blvd., Orlando, consult. engrs.

▲ **Va., Newport News**—PIER—Virginia State Ports Auth., State Office Bldg., Richmond, will not construct pier, $15,000,000. C & O Railroad, lessee. Project abandoned. CD 5/4.

▲ **West Virginia**—GAS LINE—Hope Natural Gas Co., Clarksburg, replacing 20 mi. 12 in. gas lines with 20 in. pipe, Lewis, Ritchie and Pleasant Counties. $2,097,100.

▲ **Que., Baie Comeau**—WHARF, etc.—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., 100 x 400 ft. wharf and warehouse. $4,300,000. CD 10/15/59.

▲ **Que., Chandler**—HARBOR IMPRVS.—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbor, incl. three piers, 3,000 ft., 700 ft. and 500 ft., administration and service bldgs. $4,500,000.

PUBLIC BUILDINGS

▲ **Ala., Auburn**—COLISEUM—Auburn University, Auburn, plans by Sherlock, Smith & Adams, 303 Washington Ave., Montgomery, 10,000 seat sports coliseum, $2,500,000. CD 4/15/55.

▲ **Calif., Los Angeles**—DORMITORY—Bd. Supervs. Los Angeles Co. Hall of Records, plans by Arthur Froelich & Assoc., 383 S. Robertson Blvd., Beverly Hills, Interns and Resident Physicians Dormitory, Los Angeles County General Hospital. $2,661,000. CD 6/13.

▲ **D. C., Wash.**—ADMINISTRATION—D. C. Govt., Bldgs. & Grounds, 499 Pennsylvania Ave. N. W., West Administration Bldg., 6th St., C St. and Indiana Ave. N. W. $22,000,000.

▲ **D. C., Wash.**—HOSPITAL—D. C. Govt., Bldgs. & Grounds, 499 Pennsylvania Ave. N. W., Doctor's Residence, D. C. General Hospital, 19th and C Sts. S. E. $1,287,000; water and sewer, electrical and steam distr. and boiler plant at D. C. General Hospital, $1,170,000; reconstruction three main hospital buildings into central core, $11,800,000. CD 2/19/53.

▲ **D. C., Wash.**—SCHOOLS—D. C. Govt., Bldgs. & Grounds, 499 Pennsylvania Ave. N. W.,
Bancroft Elementary School addn., 18th and Newton Sts. N. W. $550,000.
Brent Elementary School addn., 3rd and D Sts. S. E. $670,000.
Bunker Hill Elementary School addn., 14th St. and Michigan Ave. N. E. $813,000.
Davis Elementary School addn., 44th Place and H Sts. S. E. $611,000.
Dunbar Senior High School addn., $1,500,000.
Garrison Elementary School addn., 12th St. between R and S Sts. N. W. $911,000.
Phelps Vocational High School addn., alterations, 24th St. and Benning Rd. N. E. $2,719,000.
Powell elementary school addition. Uoshur St. between 13th and 14th Sts., N. W. $400,000.
Shaw Jr. High School replacement, 7th and O Sts. N. W. $2,712,000.
elementary school, 11th and Clifton Sts. N. W. $1,150,000.
elementary school, 53rd and C Sts. N. E. $1,100,000.
elementary school, North Dakota and Kansas Aves. N. W. $790,000.
elementary school, Wheeler Rd. and Mississippi Ave. S. E. $1,100,000.
elementary school, Camp Simms Area S. E. $1,080,000.
plans by Victor B. Spector, 207 W. Broad St., Falls Church, Va., Elementary school at 4th and W Sts. N. W. $1,032,000.
plans by McLeod & Ferrara, 1223 Connecticut Ave. N. W., Elliot Jr. High School addn., 18th and B Sts. N. E. $1,200,000.
plans by Milton J. Prassas, 5915 Massachusetts Ave., Zone 16, Barnard Elementary School addn., Decatur St. between 4th and 5th Sts. N. W. $500,000. CD 5/29/52.

▲ **Fla., Sanford** — COURTHOUSE — Seminole County, County Offices, Sanford, plans by James Gamble Rogers, Lovelock & Fitz, 145 Lincoln Ave., Winter Park, County Courthouse, $2,600,000. CD 3/29.

▲ **N. J., Cranford**—SCHOOL—Bd. Educ. Cranford Twp., Central Ave., plans by Epole & Seaman, 901 Broad St., Newark, Junior High School, Hillside Ave. $2,500,000.

▲ **N. J., Point Pleasant**—HIGH SCHOOL—Bd. Educ., referendum Nov. 29, high school. $2,650,000. Boyken & Moss, 90 Bayard St., New Brunswick, archts. CD 3/22.

▲ **N. J., Ridgewood**—SCHOOL—Bd. Educ. Village Ridgewood, Ridgewood Ave., voted bonds Oct. 4, high school addn. $2,575,000. Micklewright & Mountford, E. Stuyvesant, Trenton, archts. CD 7/15.

▲ **N. Y., Central Islip**—SCHOOLS—Bd. Educ., U.F.S.D. No. 13, Islip, plans by Frederic P. Wiedersum Assocs., 65 Roosevelt Ave., Valley Stream, N. Y., Junior High School, South end area. $2,400,000. S. Cafarelli, 65 Roosevelt Ave., Valley Stream, mechanical engr. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, Zone 17, structural engrs. Bids in December; addn., alterations Wheeler Rd. School, $425,000. Bids about Nov. 15-Dec. 1.

▲ **N. Y., New York**—PUBLIC HEALTH LABORATORY—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by De Young, Moscowitz & Rosenberg, 205 E. 42 St., New York 17, N. Y., 14 story, 102 ft. 4 in. x 205 ft. 8 in. brick aluminum air-conditioned public health laboratory bldg., First Ave. between E. 26 and E. 27 Sts. $13,000,000. Jaros, Baum & Bolles, 415 Lexington Ave., New York 17, N. Y., mechanical engrs. DiStasio & Van Buren, 136 Liberty St., New York 6, N. Y., structural engrs. CD 5/27/59.

▲ **N. Y., South Jamaica**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, final plans approved by Frederick G. Frost Jr. & Assocs., 144 East 30 St., New York, N. Y., Proj. E-434, Junior High School 8, 167 St. and 108 Rd., Queens Boro. $3,500,000. Severud-Elstad & Krueger, 415 Lexington Ave., New York, Zone 17, structural engrs. Guy B. Panero, 630 3 Ave., New York, Zone 17, mechanical engr. CD 4/4.

▲ **N. C., Winston-Salem** — HOSPITAL — Bd. Comrs. Forsyth Co., Courthouse, plans by Lashmit, James, Brown & Pollock, 865 W. 4½ St., Winston-Salem, 10 story, 336,000 sq. ft. 540 bed Forsyth General Hospital, $10,000,000. R. D. Tillson & Assocs., Inc., 115 Emerywood Court, High Point, consult. engr. Bids in March. CD 10/22/59.

▲ **Pa., Lehighton**—SCHOOL—Lehighton Area Union School Dist., secondary school, Proj. 829, $2,000,000.

▲ **Pa., Phila.**—SCHOOL—Bd. Educ., 21 St. and Parkway, Junior High School, 32 St. and Ridge Ave. Over $2,500,000.

▲ **Pa., Phila.**—LIBRARY, etc.—University of Pennsylvania, 3025 Walnut St., graduate library and research center, Phase I, $1,500,000, Phase II, $1,500,000; administration and general services bldg., Phase I, $1,300,000, Phase II, $1,200,000; Liberal Arts Classroom, Phase I, $1,000,000, Phase II, $800,000; Fine Arts Bldg., Phase I, $1,400,000, Phase II, $1,000,000; general research, Phase I, $1,200,000, Phase II $600,000; garage, ice skating rink and women's athletic field, $1,400,000; chemistry laboratory addn., $2,000,000; Physical Sciences addn., Phase I, $1,500,000, Phase II, $1,600,000; Graduate Studies Center, Phase I, $2,000,000, Phase II, $1,750,000. CD 10/14/46.

▲ **R. I., Warwick**—SCHOOL—City Warwick, School Bldg., Comn., School Admin., Bldg. 1849, Warwick Ave., bond election Nov. 8, Veterans Memorial High School, $3,000,000. Construction 1961. CD 3/31/59.

▲ **Tex., Beaumont**—GRAIN ELEVATOR, etc.—Port of Beaumont, Bd. Comrs., First Phase, 3 million bu. grain elevator, $3,000,000; rigging berth, $750,000; grain shipping berth, $950,000; 86,000 sq. ft., transit shed, $625,000; 600 ft. cargo berth, $800,000; 1500 ft. wharf, facilities, $400,000; 15,000 sq. ft. dock area, $150,000; drainage and earthwork, $100,000, along bank of Neches River.

▲ **Tex., Dallas**—SCHOOL—Dallas Ind. School Dist., 3700 Ross Ave., plans by Collins & Dryden & Associates, 2921 Fairmount St., 161,135 sq. ft. Franklin D. Roosevelt High School No. 4, Bonnie View Rd. north of Morrell, $2,000,000. Hunt & Joiner, 4512 N. Central Expressway and Gregerson & Gaynor, 3010 Blackburn St., both Houston, consult. engrs. CD 5/13.

▲ **Tex., El Paso**—AUDITORIUM-CIVIC CENTER—El Paso County, Courthouse, auditorium and civic center, $5,600,000.

▲ **Alta., Calgary**—HOSPITAL—Dpt. Health, Parliament Bldgs., Edmonton, 9 story stem and two 11 story wings, Foothills Provincial General Hospital, $12,000,000; chronic hospital, Foothills Provincial General Hospital, $1,000,000; 10 story nurses residence for Foothills Provincial General Hospital, $2,000,000.

▲ **N. S., Halifax**—HOUSING—Central Mortgage & Housing Corp., 1032 Gottingen St., 400 unit housing, Shannon Park, near here for National Defence Personnel of Navy, $4,000,000.

▲ **Que., Baie Comeau**—COURTHOUSE, etc.—Dpt. P. Wks., Parliament Bldgs., Quebec City, plans by Parent & Moranville, C. P., 209, Hauterive, courthouse and jail, Mont Sec. $2,000,000.

COMMERCIAL BUILDINGS

▲ **Calif., Newhall** — DWELLINGS — Signature Homes, 8929 Wilshire Blvd., Beverly Hills, plans by L. C. Major & Assoc., 11015 Paramount Blvd., Downey, 1500 frame, stucco dwellings, Mint Canyon. $15,000,000..

▲ **Calif., San Francisco**—APARTMENTS, etc.—Perini-San Francisco Assocs., 225 California St., Zone 11, 3 slab tower apartments, (1,313 units) five point tower apartments (755 units and 106 maisonetts) covered parking and parks; 25 story office bldg. and parking garage, Golden Gateway Project, $60,000,000.

▲ **Conn., Darien**—DEPARTMENT STORE—Lord & Taylor, Fifth Ave. and 38th St., New York, N. Y., department store, Mansfield Ave. $2,000,000.

▲ **Conn., New Haven**—LABORATORY—Yale University, 119 College St., plans by Philip C. Johnson, 112 E 55 St., New York, N. Y., science laboratory, Pierson-Sage Sq., Whitney Ave., and Edwards St., $3,000,000; chemistry laboratory, Pierson-Sage Sq., Whitney Ave., and Edwards St., $2,500,000, CD 5/31.

▲ **D. C., Wash.**—HOSPITAL—Greater Southeast Community Hospital Foundation, Inc., 1345 Good Hope Rd. S. E. plans by F. Wallace Dixon & Assocs., 1832 M St. N. W., 400 bed hospital, 13th St. and Southern Ave. S. E. $6,000,000. Guy B. Panero, 630 3 Ave., New York, N. Y., consult. engr. CD 2/16/59.

▲ **Fla., Winter Park**—HOTEL—Mayell Enterprises, 1091 Beach Dr., St. Petersburg, plans by James Gamble Rogers, Lovelock & Fitz, 145 Lincoln Ave., 4 units retirement hotel incl. remodeling of Alabama Hotel, $5,000,000.

▲ **Ga., Atlanta**—MOTOR HOTEL—Atlanta-Americana Motel Hotel, Inc., 950 W. Peachtree St., N.W., plans by Melvin Grossman, 420 Lincoln Rd., Miami Beach, Fla., motor hotel. $3,000,000,. Armstrong & Edwards, 26 Peachtree Place, N.W., consult. engrs. CD 8/22.

▲ **Hawaii, Eva Beach**—HOMES—Blackfield Enterprises, 915 South St., Honolulu, 160 homes, Eva Beach Estates. $3,000,000.

▲ **Hawaii, Honolulu** — OFFICE — Developers Mitsuyuki Kido, Pacific Bldg., Honolulu, and George M. Hasegawa, Rm. 207, Alexander Bldg., plans by Lemmon Freeth Haines & Jones, 1410 Kapiolani Blvd., 6 story, 80,000 sq. ft. office, underground parking. $2,000,000.

▲ **Hawaii, Keaukaha**—RESORT HOTEL—En Loy Kong, Kong's Floraleigh Gardens, Hilo, plans by Belt, Collins & Assocs., Hawaiian Life Bldg., Honolulu, resort hotel. $3,000,000.

▲ **Hawaii, Pearl Harbor**—DWELLINGS—Joseph R. Pao, 914 Alta Moana, Honolulu, plans by L. C. Major & Assoc., 11015 S. Paramount Blvd., Downey, Calif., 400 wood frame dwellings. $4,000,000.

▲ **Ill., Rockford**—HOSPITAL—St. Anthony's Hospital, 1411 E. State St., hospital and conversion, $4,500,000. Bids early November. CD 6/14/46.

▲ **Md., Wheaton**—HOMES—Colt Development Co., 1023 DeVere Dr., Silver Spring, plans by Cohen, Haft & Assoc., 7961 Eastern Ave., Silver Spring, 350 homes, Bowie Tract, Georgia Ave. to be known as Foxhall. $9,000,000. Thomas G. Oyster, 2419 Reedie Dr., Wheaton, consult. engrs.

▲ **Mass., Lowell**—RESIDENCES—Owner, c/o Peter C. Paige, archt., 47 Valley Rd., Dedham, 100-200 residences, Bellevue Section. $3,000,000-$6,000,000. Bids March 1961.

▲ **Minn., Crystal (P. O. Minneapolis)**—SHOPPING CENTER—Willow Bend Co., 5406 Florida Ave., Minneapolis, plans by Thorsen & Thorshov, Inc., 1009 Marquette Ave., Minneapolis, shopping center remodel and expansion, W. Broadway and Bass Lake Rd. $6,000,000. Constr. 1961.

▲ **Minn., St. Louis Park**—APARTMENTS—Allied Realty, Inc., 430 1st Ave. N., Minneapolis, plans by B. Gingold & Assocs., Title Insurance Bldg., Minneapolis, two 6 story apartments, Minnetonka Blvd. near Joppa Ave. $2,000,000. Constr. 1961 and 1962.

▲ **Mo., Kansas**—MOTOR MOTEL—Holiday Inn Motels, c/o Phil Davis, US 40 and Noland Rd., Independence, plans by Wm. S. Loth & Assoc., Mission Bank Bldg., Mission, Kan., 2 story, 204-room concrete block, brick motor motel and 560 car parking. $2,500,000. Everett & Keleti, 4550 Main, Kansas City, Mo., consult. engrs.

▲ **N. J., Paramus**—DEPARTMENT STORE—Ohrbach's Dpt. Store, 5 W. 34 St., New York 1, N. Y., plans by Charles Luckman Assocs., 680 5 Ave., New York 19, N. Y., 150,000 sq. ft. department store, Garden State Plaza. $3,000,000.

▲ **N. Y., Great Kills**—MEMORIAL HIGH SCHOOL—Archdiocesan Bldg. Comn., 451 Madison Ave., New York, Zone 22, plans by Chas. Luckman Assocs., 680 5 Ave., New York 19, N. Y., 1,000 boys Monsignor Farrell Memorial High School, Amboy Rd., Oakwood Heights. $4,000,000.

▲ **N. Y., New York**—APARTMENT—Bridge Site Building Corp., sub. Kratter Corp., 521 5 Ave., plans by Brown & Gunther, 1860 Broadway, Zone 23, apartment over approaches George Washington Bridge, W. 178 and 179 Sts., Audubon and Wadsworth Aves. Sears & Kopf, 45 W. 45 St., New York 36, N. Y., mech. engrs. Farkas & Barron, 5 Beekman St., New York, N. Y., structural engrs. CD 8/22.

▲ **N. Y., New York**—WARREN HOUSE—Glickman Corp., 565 Fifth Ave., plans by H. I. Feldman, 415 Lexington Ave., Zone 17, 332 families Warren House apartment, northwest corner of East 34 St. and 3 Ave. $8,000,000.

▲ **N. Y., New York**—SCHOOL, etc.—Grace Institute, 149 W. 60 St., Zone 23, plans by Resnicky & Green, 654 Madison Ave., Zone 21, school, chapel and convent, west of Second Ave. between East 64 and East 65 Sts. Over $2,000,000.

▲ **O., Barberton**—HOMES—S. D. Stanson Co., 23 E. Exchange St., Akron, plans by Keith Haag, 2765 Hudson Dr., Akron, 800 homes, southeast of South Barberton, Coventry Twp. $6,500,000.

▲ **O., Cincinnati**—DEPARTMENT STORE—Mabley & Carew Co., Carew Tower, downtown department store alterations, $4,000,000. Constr. 1961.

▲ **O., Cleveland**—OFFICE—Owner, c/o Shaker Lane Apartment Co., 2680 N. Moreland Blvd., plans by Outcalt Guenther & Van Buren, 13124 Shaker Sq., Zone 20, 8 story, 164,200 sq. ft. Shaker Plaza office, E. 127th St. and Shaker Blvd. $2,500,000.

▲ **O., Mayfield** — APARTMENTS — Owner, c/o Richard Hawley Cutting & Assocs., 10550 Euclid Ave., Cleveland, Zone 6, two 20 story apartments, Wilson Mills Rd. near Gates Mills line, $7,000,000.

▲ **Va., Alexandria**—APARTMENTS—Mars Inc., 8416 Georgia Ave., Silver Spring, Md. plans by Saunders & Assoc., 3636 King St., apartments, Duke St. east of North Van Dorn near Shirley Highway. $16,000,000. Holland Engineering Co., 120 S. Pitt St., consult. engr.

▲ **Va., Williamsburg**—AUDITORIUM—Colonial Williamsburg, Inc., Williamsburg, auditorium; swimming pool; ice-skating rink; Williamsburg Inn & Williamsburg Lodge addn. $3,000,000. CD 4/15/54.

▲ **Ont., Ottawa** — Y.M.C.A. — Young Men's Christian Assn., Metcalfe St., 10 story Y.M.C.A., O'Connor and Argyle Sts. $3,000,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Richmond**—PLANT—Standard Oil Co. of California, 225 Bush St., San Francisco, paraxylene and orthoxylene chemical plant. $17,000,000.

▲ **Tex., San Angelo**—POWER PLANT—West Texas Utilities Co., 3rd and Cypress Sts., Abilene, 75,000 KW Lake Nasworthy Electric Power Plant, $5,000,000-$10,000,000. Sargent & Lundy, 140 S. Dearborn St., Chicago, Zone 3, Ill., consult. engrs.

▲ **Alta., Edmonton**—PARKING—Tankoos Yarmon Ltd., 320 Bay St., Toronto, Ont., parking project, $4,600,000.

▲ **Ont., Smith Falls**—PLANT—Hershey Chocolate Corp., 19 E. Chocolate Ave., Hershey, Pa., U.S.A., chocolate plant. $7,000,000.

▲ **Ont., Toronto** — INDUSTRIAL PLAZA — Owner, c/o Denly Thompson, 40 Owen Blvd., Willowdale, plans by Weir, Cripps & Assocs., 1216 Yonge St., industrial plaza, Midland Ave. $5,000,000.

(Proposal Advertisements see pp. 87 to 89)

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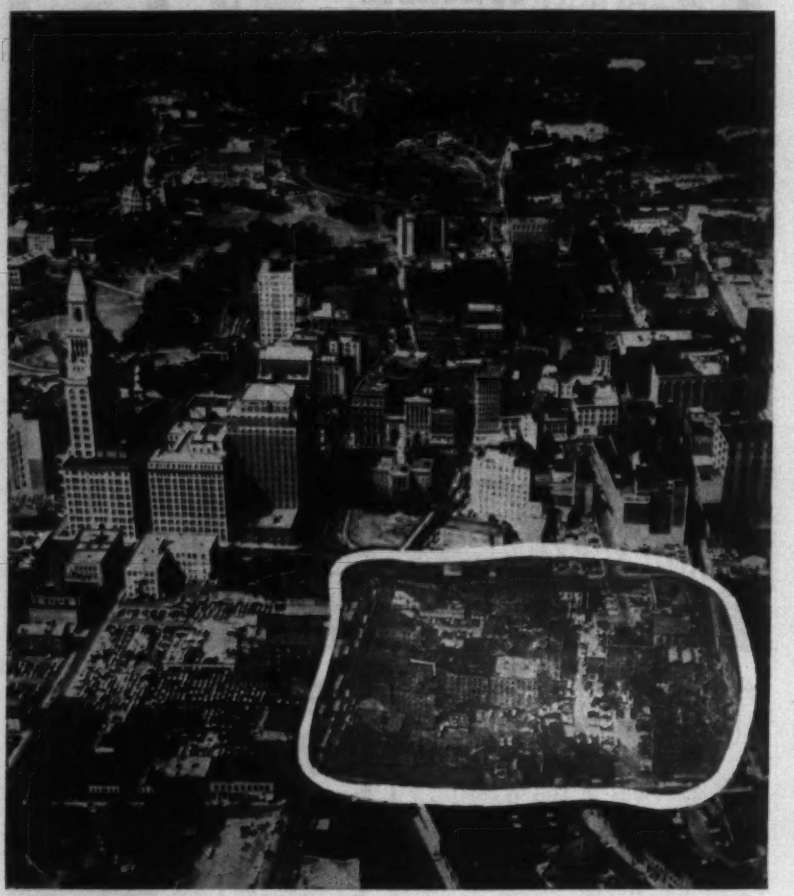
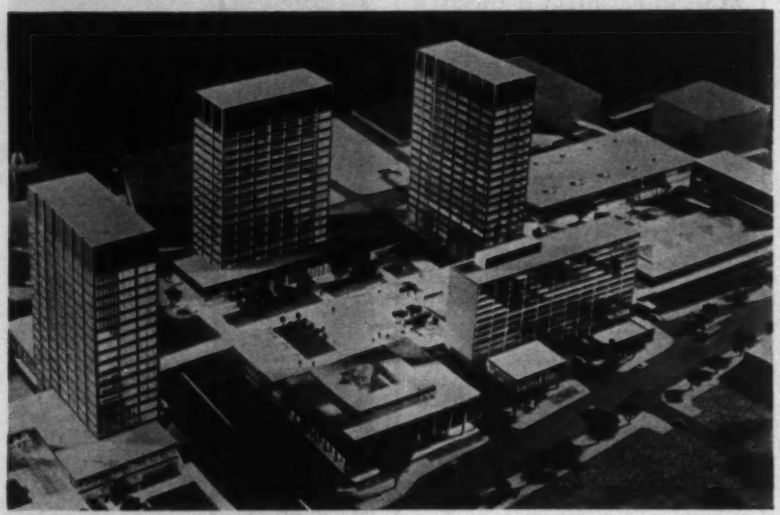
Secret Ingredient in Redevelopment



OLD LOOK: Hartford's first renewal site returned only $90,000 in annual taxes.



NEW LOOK: When finished, these buildings will return $1 million a year.

When Title I of the National Housing Act made urban redevelopment part of the country's national policy in 1949, visions of old cities reborn danced before the eyes of government officials, contractors and diverse real estate interests. So bright were the dreams of rebuilt cities, one national real estate group in 1952 adopted as its rallying cry, "No slums by '60."

But 1960 has come—and almost gone. Slums—residential, commercial and industrial—are still with the nation's cities. With only a few exceptions cities have made no more than a small dent in the surface of their shabbiness.

Special ENR reports have detailed the transformations in progress in Pittsburgh and Philadelphia. Many smaller cities are also making progress, if on a more modest scale.

Such a city is Hartford, Conn. And to Hartford last week came 400 civic leaders and city officials to hear and see how one small part of a city will be made to shine. Visible progress, however, is occurring more than 10 years after Hartford set up the machinery designed to eliminate blight and replace it with glistening new structures.

Considered in terms of dollars, Hartford's effort, Constitution Plaza, is impressive—$35 million worth of new buildings, some under construction, others about to start. But in terms of area covered, the new development is small—just 12 acres out of a total of 123 designated as blighted and committed to redevelopment.

The 12 acres of commercial development will be concrete proof that the most important ingredient in any redevelopment recipe is money. Planners, civic boosters and city officials, while drawing plans and inspecting pictures and drawings of a rebuilt city had seemed to overlook the financial problems.

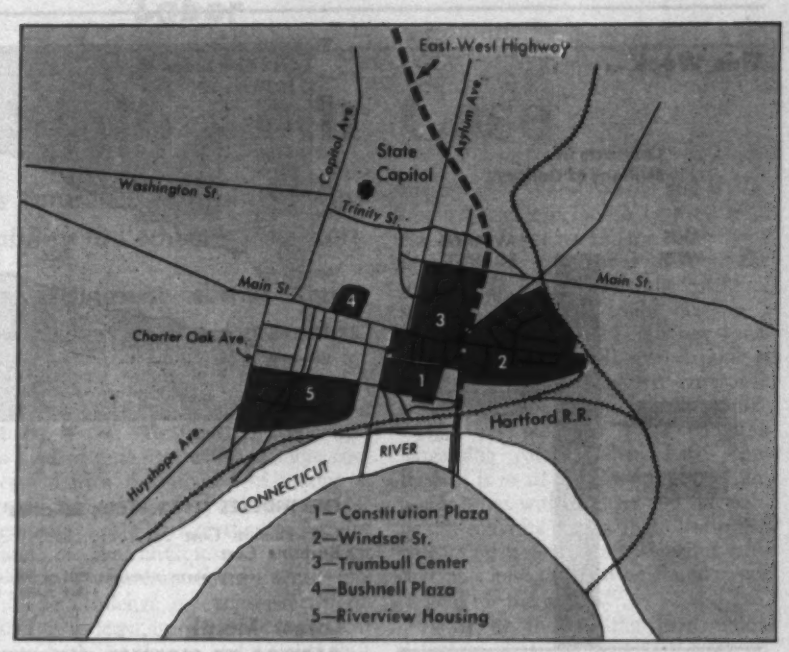
Of drawings there is no shortage. Hartford knows that now. More important, it has learned that architects' renderings are no substitute for cash—lots of it. There is also the realization that the two-thirds federal grant and the locality's contribution, which pays for the purchase of property in a blighted area, is only a small start, and the easiest one, toward rebuilding. And the bargain in land offered to developers, made possible by public money, is no guarantee of solid success.

Last January redevelopment plans for

Is Money

Constitution Plaza almost fizzled, or at least were threatened with a lengthy setback. F. H. McGraw & Co., the Hartford construction company selected by the city as redeveloper (ENR July 24, 1958, p. 82) couldn't raise the $2.8 million to buy the land. Travelers Insurance Co. saved the day. A new corporation, Constitution Plaza, Inc., was formed. Through it, Travelers provided the purchase price and now is supplying the construction money and eventually, the mortgage financing (ENR Feb. 11, p. 86).

The McGraw Co., however, received $650,000 worth of stock in the new corporation as reimbursement for expenses and transfer of a $250,000 deposit McGraw paid to the city. McGraw also was given the construction contracts for all of the buildings but one.



THE BIG PLAN: Constitution Plaza, now started, is part of over-all renewal.

Although sponsorship changed hands, the plan for the site is little different from that proposed by McGraw 27 months ago. It will consist of two office buildings 18 to 20 stories high, an eight-story hotel, a four-story radio and TV broadcasting center, a five-story office building, several stores and underground parking for 2,000 cars.

Last week the 400 who came to Hartford from many parts of the country attended a symposium on redevelopment sponsored by the financial institutions involved in the project either as sponsor or eventual tenants. The visitors watched with envy the vast construction operations under way and listened with hope to the message hammered home constantly during the two-day meeting: "Responsibility for bringing urban development plans to a successful conclusion rests upon the business interests in the community."

Officials of the development corporation and Travelers concede that the return on the investment will be less than could be obtained on the same amount of money invested in more orthodox ways—mortgages, bonds, stocks, policy loans. The money tied up in construction would ordinarily be working and drawing interest. When the site is completed, additional funds will be tied up over a long period.

Travelers' move is based on enlightened self-interest. If its headquarters city is to continue as a flourishing commercial center, its appearance must be improved. It must be made attractive to other commerce and industry in search of office or industrial space for expansion or relocation. Increasing community service costs must be paid for with larger revenues from new buildings and new business.

Travelers is providing the commercial space that will boost city revenues, and perhaps the spark that will help light a fire under the city's other redevelopment plans.

These projects are:

- Windsor Street, 71-acre commercial and light industry center.
- Trumbull Center, 6.3 acres for office and retail area, built around a municipal convention hall.
- Centinal Mall, 5.4-acre shopping area adjoining Trumbull Center.
- Bushnell Plaza, 4.7-acre residential site, luxury apartments.
- Riverview, 24-acre residential site, moderate income apartment buildings.

Outlays for these projects are expected total $66.7 million—$20.6 million worth of public investment and $46.1 million worth of private investment.

The private outlay probably will run higher because the non-public investment in the Windsor Street development site includes only the cost of land to the buyers. This site is planned as both a renewal project and a redevelopment project. Only buildings not structurally sound will be razed, the others will remain as they are or improved. Actual building outlays have not been estimated.

Demolition on the Bushnell Plaza residential area has begun and a start on land acquisition in the Windsor Street area has been made. City officials say that chances are bright for obtaining a sponsor for development of the Bushnell site. Reportedly interested are a real estate development company and an aluminum producer.

The apparent rapid progress on the residential development is rather typical of urban renewal. There is a large market for apartments, the market can be accurately measured and the return on investment is high.

For the most part, these favorable factors are lacking when a large commercial project is launched. Locally, there generally is office space available at relatively low rental rates, although its quality is usually far short of that planned. Moreover, the rules and regulations that are laid down by federal agencies are in direct opposition to practice in commercial real estate.

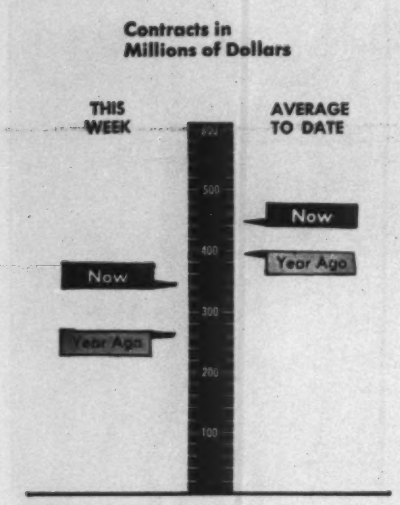
A developer must have a firm plan of design and construction acceptable to both local and federal agencies. Having gained this approval, the developer then must find companies willing to adapt themselves to a rather rigid, preconcieved plan. But a developer working outside of urban redevelopment lets potential major tenants select the plan and name the space requirements that they want.

This handicap is one that many city officials and developers would like removed at the federal level, and one that received some attention at the session in Hartford last week.

The key, however, is gerater willingness on the part of local business to invest in the redevelopment projects that the cities have planned.

Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

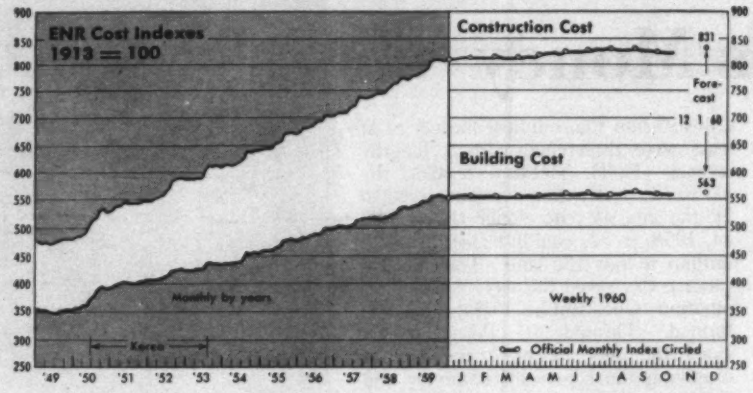
Contracts Awarded In 50 States By Type	This Week	Cum. 43 wks 1960	Chge '59-'60 %
	millions		
All Heavy Construction	$348.1	$19,253.8	+13
By Ownership			
PRIVATE	182.6	10,437.9	+22
PUBLIC	165.5	8,815.9	+ 4
State & Municipal	143.9	6,881.5	+14
Federal	21.6	1,934.4	−20
By Type of Work			
PUBLIC			
Waterworks	2.2	385.4	+16
Sewerage	7.9	485.0	−10
Bridges*	7.5	678.7	+41
Highways	67.0	2,836.3	+15
Earthwork, Dams & Waterways	8.5	649.3	−12
Buildings:			
Excl. Housing	39.9	2,015.3	− 8
Housing	18.1	560.4	+ 3
Unclassified	14.3	1,210.9	+ 3
PRIVATE			
Buildings:			
Mass Housing	85.5	5,107.4	+32
Commercial	55.3	2,052.8	+13
Industrial	35.9	2,318.9	− 6
Unclassified	6.0	953.4	+119

*Includes Private bridges

NOTE Minimum size projects included are: Waterworks and waterways, $53 000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Oct. 20	Cum. 42 wks 1960	Chge '59-'60 %
	millions		
Corporate Securities	$132.5	$2,825.9	− 8
State and Municipal:			
All Except Housing	81.3	5,314.7	+ 9
Housing	....	189.3	+152
Federal Loans	....	160.4	+35
Federal Aid	89.9	3,228.4	− 3
Total Nonfederal	$303.7	$11,718.8	+ 2
Federal Appropriations:			
Projects in U. S.	....	$ 3,165.6	−11
Outside U. S.	....	159.1	+610
Total New Capital	$303.7	$15,043.5	−0.2



ENR INDEXES (1913=100), 20-cities' average	Week of Oct. 20 1960	% Change from Sept. 22 1960	% Change from Oct. 22 1959
Construction Cost	829.25	−0.10	+2.40
Building Cost	561.12	−0.15	+1.24

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

Latest Month . . .

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	September 1960 (millions)	Percentage Change from last Month	Year
Total U. S. (50 States)	$123,782	−0.01	+8.2
By Ownership—			
Private	55,760	−0.04	+10.6
State & Municipal	53,518	−0.3	+5.7
Federal	14,503	+1.7	+8.3
By Type of Work—			
Waterworks	2,866	−0.1	+4.3
Sewerage	3,959	+0.4	+8.7
Bridges	3,293	−0.7	−1.3
Highways	13,651	−0.3	+8.8
Earthwork, Dams and Waterways	12,014	+1.4	+3.8
Public Buildings	22,269	−0.1	+7.8
Industrial Buildings	18,157	−0.2	+7.3
Commercial Buildings	26,837	+0.5	+16.9
Unclassified, Private	10,765*	−0.2	+2.3
Unclassified, Public	9,970	+0.2	+4.9

* Includes Private Bridges, $97 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1960 Sept. (millions)	1960 9-months (millions)	Percent Change from 1959 Sept. (a)	9-Mos.
Total U. S. (50 States)	$1,629	$17,375	+5.0	+24.5
By Ownership—				
Private	751	9,749	+12.0	+24.9
State & Municipal	500	6,075	−9.5	+19.2
Federal	378	1,551	+160.0	+47.3
By Type of Work—				
Watreworks	21	273	−77.8	−25.6
Sewerage	60	505	+23.3	+4.7
Bridges	25	187	+5.4	−34.5
Highways	165	1,977	+128.7	+66.1
Earthwork, Dams and Waterways	213	396	+276.8	+112.2
Public Buildings	284	3,280	−6.5	+15.0
Industrial Buildings	179	2,805	−17.2	+21.8
Commercial: Mass Housing	258	4,024	−30.3	+49.2
Other Building	256	2,264	+21.7	+15.5
Unclassified, Private	59	659**	+2.3	−21.9
Unclassified, Public	110	1,007	−1.8	+28.8

** Includes Private Bridges, $9 million.

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (50 States)	$1,038	$8,454	+12.8	+5.6
By Ownership—				
Private	374	3,333	−22.8	−15.7
State & Municipal	565	3,816	+56.4	+10.4
Federal	99	1,305	+32.5	−18.1

(a) Based on average week: 5 weeks in Sept '60 and 4 weeks in Sept '59.

Employers: State Your Case

- **U. S. Steel official says future of bargaining may hang on management ability to "educate" workers.**
- **General Electric strike settlement shows union leaders have no monopoly over minds of members.**

Out of the abortive strike against General Electric Co. came some support last week for the proposition that relief from inflationary and restrictive labor contracts lies not so much in the halls of Congress or in high-level, labor-management conferences as it does in local-level employer efforts to educate employees and the public in the economic facts of life.

Local 301, which is the largest in James Carey's International Union of Electrical Workers, defied the national union by returning to work in G.E.'s home plant in Schenectady, N. Y. Five days later, IUE settled for about what the company originally offered.

Calling the strike "nothing short of a suicidal expedition," a spokesman for the local said present economic conditions throughout the country and at G.E. were not favorable for a successful strike. "The simple trade union facts of life," he said, "are that we must go as far as we can in order to win the maximum benefits for the workers, but we must also know when to stop before we lose more than we bargained for."

In August, G.E. offered a three-year contract with two pay increases of 3% and 4%, plus a number of benefits related primarily to job and income security. It said it had gone as far as it could without promoting inflation and running the risk of pricing the company out of the market and its employees out of jobs. It held the line throughout the three-week strike and repeatedly preached the doctrine that the welfare of its workers is tied to the welfare of the company, with "customers, and customers alone" being the ones who "create and maintain jobs."

Mr. Carey's failure to generate enthusiasm for his G.E. strike indicates G.E. was successful in getting its message across to its employees. And it indicates that there is some merit—from management's point of view—to the promotional activities advocated by U. S. Steel Corp.

Speaking at a personnel conference in Texas last month, R. Heath Larry, U.S. Steel's administrative vice president for labor relations, suggested that the trouble with collective bargaining today is that "the law has encouraged a kind of unionism which is more concerned with the progress of unions as such than with the real progress of employees as a part of the competitive unit of the enterprise system with which they have associated themselves."

The challenge for management, he said, is to learn again how to communicate with employees and how to put across the point that the progress and livelihood of workers are "unalterably intertwined" with those of the enterprises for which they work.

Mr. Larry accused union leaders of promoting, for political purposes of their own, bargaining programs that deny the "role of profit as the motivator of growth and progress," that deny the "role of the market as the discipline of profits," and that deny the identification of the employees' interests with the progress of their enterprises. Restrictions on efficiency have been written into labor contracts, he said, and wage settlements have been higher than can be accommodated under the accelerating pace of competition.

How has this come about? Mr. Larry suggested three answers:

- Management has lost touch with its workers "as though an employee's sense of identity with his company disappeared when he elected union representation."
- Workers have blindly followed their union leaders because they have been uninformed about "economic facts."
- The American economy has had in the past "a tolerance for inflation" that has permitted the growth of inflationary and restrictive agreements.

Mr. Larry contended that competitive pressures on American business, however, now make a departure from past union wage and benefit policies "unavoidable."

He predicted that the new compass setting will not be found in joint labor-management conferences at the top level, which he said were tried without success after World Wars I and II. He implied that it is foolish to work from the top down, when the underlying problems are those that exist at the local level. Furthermore, he asked, if summit conferences could develop a national wage policy, might not a national price policy follow and pose as much of a threat to the free enterprise system as compulsory arbitration would?

The "real potential" for a change in bargaining patterns, Mr. Larry contended, is in stepped-up employer communications with workers and the public to convince them that "collective bargaining is not like a beautiful rainbow at whose end can be found a pot of gold for the asking."

As if he foresaw the local union defection that occurred last week in the G.E. strike, he said: "Thinking employees are coming to question a lot of things they had taken as gospel from their union leaders for a long time." It is up to management, he stated, to make it "good politics" for unions to follow policies which assist rather than harm the interests of the enterprises on which the livelihood of their members depends.

The extent to which bargaining adjusts itself to the "requirements of an efficiently operating competitive enterprise system," Mr. Larry said, "may depend in substantial measure on the climate of opinion which employers throughout the country can help to develop among their employees and the surrounding public."

Engineering Union Starts New Labor Board Action

Engineers Association, a Sperry Gyroscope Co. engineering union that recently affiliated with the AFL-CIO's International Union of Electrical Workers, last week filed unfair labor practice charges against Sperry with the National Labor Relations Board.

The charges stem from a decertification election held last month. Sperry engineers and technicians voted against EA-IUE representation by a vote of 1,724 to 1,509 (ENR Sept. 15, p. 101). A contest of the election is pending.

EA charges that the company financed, aided and supported the decertification committee, which petitioned for the election, and that it exerted unfair pressure on EA members not to support EA.

Can Local Committees Prevent Strikes?

Pennsylvania officials promote tripartite, local level committees to improve labor-management relations

Can local labor-management-citizens committees improve labor-management relations, reduce strikes and promote industrial peace?

A Wilkes-Barre, Pa., experiment, in which construction labor and management have participated, indicates that the answer may be "yes." Pennsylvania's Gov. David L. Lawrence has been sufficiently impressed by the experiment to make its extension to other areas an official objective of the state's newly expanded Bureau of Mediation.

The Wilkes-Barre program has been functioning since March, 1957. It centers around a voluntarily formed, 30-member, tripartite committee called the "Labor-Management-Citizens Committee." Its object is to promote industrial self-government and to provide "a means of minimizing and reducing the possibility of loss of production and wages" caused by industrial strife.

The committee's primary function is the mediation of disputes without work stoppages. A collateral function is the development of educational programs to give labor and management a better understanding of their mutual problems. The program relies entirely on voluntary persuasion.

It is patterned after a similar plan that has operated successfully in Toledo, Ohio, for many years.

Since its inception, the Wilkes-Barre committee has handled disputes in a variety of industries. Teamsters, boilermakers, asbestos workers, carpenters and laborers are among the unions that have been involved. Eight cases were handled by the committee last year and work stoppages were averted in five of them.

A spokesman for the committee says it is too early for a full appraisal, but "when the chips are down, it will have proven a blessing to the Chamber's industrial development program and a vehicle that makes for harmony on the labor-management front."

Behind the committee's formation was a local feeling that the Wilkes-Barre area had acquired "an undeserved reputation of having troubled labor-management relations" that inhibited the area's industrial development. The industrial division of the Greater Wilkes-Barre Chamber of Commerce spearheaded formation of the new committee as a partial answer to the criticism.

The committee's charter describes the Wilkes-Barre philosophy in these terms: "Industrial harmony means more than the elimination of strikes, slowdowns and lockouts. It means a practical, commonsense recognition of the rights of both employers and employees, the mutuality of their interests, and the importance of their joint responsibility to the citizens as a whole, whose interests transcend the presumed rights of any group."

The committee works with companies and unions that have subscribed to its principles, but its services are also available to nonparticipants. Either labor or management can refer a dispute to the committee. If a basis for settlement is not found in the preliminary investigation by the committee director, the dispute is referred to a panel of the committee for informal mediation. If that fails, the parties can resort to economic power or, if both agree, submit the dispute to arbitration.

All panels are appointed from committee members and give labor, management and the public equal representation.

The director of the committee is a Wilkes College economics professor. Its chairman is a minister. Charter members of the committee included 30 companies and 18 labor unions.

Charles T. Doud, director of the Pennsylvania Bureau of Mediation, said inquiries about the Wilkes-Barre program began coming into his office after Governor Lawrence expressed the hope that other areas would try the same approach to labor-management relations.

"I think these local committees can be of help," he said, "but I would caution against too many amateurs on such committees. It depends on how good the people on the committees are and on local conditions."

The newly appointed regional directors of the bureau in Philadelphia, Pittsburgh and Easton are supposed to help the development of local committees in other areas and to serve as coordinators.

Labor relations experts in Pennsylvania do not regard the labor-management-citizens plan as a panacea. But they say they will give it every chance to prove its worth.

Prevailing Wages Challenged

Kentucky's prevailing wage law, which went into effect June 16, has already found its way into court. Injunctions against its use have been granted in two instances.

The complaints have a familiar ring: The law is improperly administered; its wage determination formula is impractical.

One of the injunctions prevents the application of state-determined wages to $1,250,000 worth of school construction in Hopkins County.

The other injunction prevents the State Prevailing Wage Board from setting wages for construction by the City of Lebanon of a building to house the Bourbon Cooperage Co.

In each case, it was successfully contended that the state-set wages are too high, that they do not reflect actual wage levels, and that the state had no authority to act because it is directed by law to use as a guide something that does not prevail in the areas—union labor contracts. Both cases are on appeal.

The law requires every public authority in the state to place prevailing wages, as determined by the state board, in all contracts for construction of public works. But unlike most such laws, it directs the board to follow collectively bargained rates wherever such rates apply to a sufficient number of workers "to furnish a reasonable basis for considering these rates to be prevailing rates in the locality."

Dissatisfaction with the state-set wages in the Hopkins County case caused the county school board to make its own wage determinations. The board said that the prevailing rate for carpenters in the area, for example, was $1.95. The state had set $3.50. School authorities said the result of such discrepancies would add $200,000 to school construction costs and necessitate elimination of 10 to 15 classrooms.

In the Lebanon case, city authorities said the state wage determinations would boost the cost of the $650,000 Bourbon project by $50,000.

The court that granted the Hopkins injunction suggested that the state board might overcome the objections raised by redetermining the wages on the basis of local testimony taken at a local hearing.

Employers Pay $25 Million To Guarantee Job Security

Union contentions that their members have a vested and bargainable interest in job and income security have been dramatically recognized by maritime employers on the West Coast.

In a new contract that may have repercussions in many industries, members of the Pacific Maritime Association have agreed with Harry Bridges' independent longshoremen's union to pay $5 million a year for the next five years for the right to increase efficiency without union interference.

Earlier, the employers had set up a $1.5-million "mechanization" fund to help dockworkers whose jobs are lost or earnings reduced by labor-saving methods and devices used in loading and unloading ships.

The new employer payments will go into the mechanization fund.

The employers are "gambling" the $5-million yearly cost of the contract against the right obtained to remove work restrictions "in the belief we can save that much or more in our payrolls, gain faster turnaround of ships and give better service to shippers."

Negro Electrician Hired On D.C. Building Job

After a lengthy controversy climaxed by the threat of government legal action, a Negro electrician has been hired for the first time to work alongside union men on a federal construction project in the District of Columbia.

The 34-year-old journeyman was employed by Howard P. Foley Co., electrical subcontractor on an $11-million government office building being constructed by McCloskey & Co. of Philadelphia.

The President's Committee on Government Contracts, headed by Vice President Richard M. Nixon, found after an investigation that qualified Negro electricians in the district were being discriminated against in employment on federal construction projects. Government contracts forbid racial discrimination in hiring.

The General Services Administration, the government agency that contracted for the office building, demanded that Foley not discriminate in any new hiring of electricians for the project (ENR Oct. 6, p. 106). After a prolonged controversy over whether Foley was balking, the Department of Justice threatened to take legal action against McCloskey, the prime contractor. The hiring of the Negro removes that threat, at least temporarily.

OFFICIAL PROPOSALS

Bids: December 13, 1960

Philadelphia, Penna.
Procurement Department
Water Department

Sealed bids will be received in Room 313, City Hall Annex, until 2.30 P.M. (E.S.T.) on Tuesday, December 13, 1960, and opened at that time, for Bid No. 2650—Work No. S-2730-F.

Wakeling Street Relief Sewer in Vankirk Street from Edmund Street to 20 Feet N.W. of Charles Street.

PRINCIPAL ITEMS OF WORK

Excavation in Tunnel	24,700 cu. yds.
Excavation—Open Cut—Shafts, Manholes and Sewer	1,000 cu. yds.
13' Dia. Concrete Sewer in Tunnel	3,508 lin. ft.
13' Dia. Concrete Sewer in Shaft	14 lin. ft.
Manholes	7

Proposal forms, questionnaires and specifications may be obtained from the Water Department, in Room 1132, City Hall Annex, Juniper Street and Filbert Street, Philadelphia 7, Penna. Blueprints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Company, 1230 Arch Street, Philadelphia 3, Penna.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions answered must be filed with the Water Commissioner, Room 1113, City Hall Annex, at least one (1) week prior to the date of opening bids.

Each proposal must be accompanied by security in form and amount as set forth in the proposal form.

Bids: November 23, 1960

Supplementary
Waterworks Programme

TENDER NOTICE
Government of Trinidad and Tobago

The Crown Agents for Oversea Governments and Administrations invite TENDERS on behalf of the Government of Trinidad and Tobago for the supply of approximately 103,000 yards of 4" to 30" steel, spun iron or prestressed concrete pipes and specials.

Applications for tender documents should be made to the offices of the Crown Agents quoting reference EC.251/413/5.

Tenders should be delivered on or before Wednesday 23rd November, 1960.

The Government of Trinidad and Tobago does not undertake to accept the lowest or any Tender.

Crown Agents for Overseas
Governments & Administrations,
4 Millbank,
LONDON, S.W.1.

Bids: November 1, 1960

Board of Education
Bureau of Construction

Notice Re: Prequalification Forms for Contractors
APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT The Deputy Superintendent of Schools, Office of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts.

For the General Construction, Plumbing and Drainage, Heating and Ventilating, Electrical Work and Lighting Fixtures of:

MANHATTAN

Public School 74, East 115th Street and 3rd Avenue.

Public School 83, (Add. & Mod.) East 109th Street, between 2nd and 3rd Avenues.

Public School 116, (Add.) East 32nd and 33rd Streets, between 2nd and 3rd Avenues.

BRONX

Public School 111, Crawford and Baychester Avenues.

Junior High School 133, Stebbins Avenue, between East 165th Street and Rogers Place.

BROOKLYN

Junior High School 271, Saratoga Avenue, between Herkimer and Fulton Streets.

Junior High School 275, Linden Boulevard, Rockaway, Hegeman and Thatford Avenues.

George Westinghouse Vocational and Technical High School, Jay, Lawrence and Bridge Streets.

Phase II—Gym, Auditorium and Television Studio Add.

QUEENS

Junior High School 192, Hollis Avenue, 204th and 205th Streets and 111th Avenue.

RICHMOND

Junior High School 2, Bedford, Boundary, Midland and Laconia Avenues.

The prequalification application form must be secured at the Office of School Buildings, Bureau of Construction, Room 407, 42-15 Crescent Street, Long Island City 1, New York, and submitted to the Deputy Superintendent of Schools at the same above address.

Bids when advertised, will be received only from prequalified bidders.

The time for submitting prequalification applications by contractors will expire on Tuesday, November 1, 1960.

Joseph R. Weiss
Deputy Superintendent of Schools

Starting: Friday, October 14, 1960
Five (5) days.
Dated: October 11, 1960
JJF:dem

Bids: December 14, 1960

Sewage Treatment Plant
Anne Arundel County, Maryland

Notice to Contractors

Sealed proposals addressed to the Anne Arundel County Sanitary Commission, Glen Burnie, Maryland for construction of a complete sewage treatment plant for the Patuxent Sanitary District will be received by said Commission at its office in Glen Burnie, Maryland until 3:00 P.M., E.S.T., Wednesday, December 14, 1960, at which place and time they will be publicly opened and read.

The sewage treatment plant is to be located west of Md. Route 3 and County Route 424, adjacent the Little Patuxent River. The plant will be of a modified activated sludge type and will include a comminutor, an aerated grit chamber, 2—40 ft. dia. primary clarifiers, 2—72'x20' activated sludge tanks, 2—60 ft. dia. final clarifiers, a chlorinating contact tank, a sludge thickening tank, 2—26 ft. dia. heated digesters, a sludge storage tank, a blower-chlorinator building, a combined administration, sludge pumping and sludge heating building, open sludge drying beds, plant piping, a water well and distribution system, an elevated water storage tank, roads, electric service, grading, walks, planting, fence and everything else as set forth in the contract documents.

All proposals must be made upon the forms provided and must be plainly marked "Proposal on Contract No. 100-S-1B, Anne Arundel County Sanitary Commission".

Plans, specifications and other contract documents may be examined at said office and copies thereof obtained upon payment of Thirty ($30.00) Dollars for each set, which amount will not be refunded.

Each proposal must be accompanied by a certified check or bid bond acceptable to the Commission in the amount of not less than five per cent (5%) of the total bid amount.

The Commission reserves the right to reject any or all proposals and to waive technical informalities as its interest may require.

The successful bidder shall furnish a surety bond in an amount at least equal to 100% of the Contract Price as security for the faithful performance of the Contract, and a Contractor's Labor and Material Bond to insure payment for labor and materials incorporated in the work.

ANNE ARUNDEL COUNTY
SANITARY COMMISSION
W. CALVIN GRAY,
CHAIRMAN
EDWIN A. DAVAULT,
SECRETARY

OFFICIAL PROPOSALS enable you to get the greatest variety of bids —and so to get the lowest prices consistent with the best work.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: November 17, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and CANAL LAW, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time, on the 17 day of NOVEMBER 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, Newtown Ronan, Assistant District Engineer, 353 Broadway, Albany 1, New York						
Greene (Rte. 23 & 145)	T.S. 60-17	Cairo-Windham, Pt. 1, S.H. 5233; Cooksburg-Cairo, Pt. 3, S.H. 8413; South Cairo-Cairo, S.H. 887; Cairo Hamlet, S.H. 954	3.02 (0.62 Acc.)	Traffic Signs	$1,100 Plans $5	$19,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery (Rte. 10)	R.C. 60-181	Canajoharie-Sharon Springs, Pt. 2, S.H. 347	0.92	Asphalt Conc.=0.92 Mi.; Prestressed, Conc. Bridge 2 Spans 116′ Total	$16,000 Plans $5	291,000
Oneida (Rte. 5 & 12)	FAC 60-25 FASH 60-12	City of Utica: North-South Art. Highway (South City Line to Oriskany Street West) Seneca Turnpike-Utica So. City Line Proj. U-UG-752(8), U-752(8)	4.37 (6.54 Acc.)	Asphalt Conc. Type 2A 3 H.G.S. Comp. I-Beam 4 Spa., 222.55′ Total; 4 Spa., 227.0′ Total; 3 Spa., 159.91′ Total; 1 Bridge Comp. I-Beam 2 Spa., 124.56′ Total; 2 RRGS Comp. I-Beam 1 Sp., 96.75′; 3 Spa., 246.84′ Total. Viaduct-Comp. I-Beam 19 Spa., 1260.5′ Total	$550,000 Plans $10	10,145,000
DISTRICT No. 3, Earl E. Towlson, District Engineer, 333 E. Washington Street, Syracuse, New York						
Onondaga (Int. Tr. Rtes. 81 & 690)	FIRC 60-178 FIC 60-22 FIC 60-23	Interstate Route 505 (Oswego Boulevard, FAC 54-3) (Syracuse-Mattydale, FASH 54-3) Interstate Route Conn. 570 (State Fair Boulevard, FAC 54-16) (North west Arterial Conn. FASH 54-5) Proj. I-81-2(43)84, I-690-3(7)208	10.5	Fencing and Miscellaneous Work	$11,000 Plans $5	197,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Genesee (Rte. 5 & 33)	FATS 60-16 FAC 59-15.	Batavia City: Main Street Arterial Highway, FAC 49-2, Proj. U-706(5)	1.54	Traffic Signs and Signals	$2,100 Plans $5	$39,000
Monroe	M 60-12	Bridges E-142, E-179, E-183 and E-184 Over Erie Canal	....	Cleaning & Painting 4 Bridges	$600 Plans $5	11,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, N. Y.						
Cattaraugus (Rte. 242)	R.C. 60-179	Salamanca-Little Valley, Pt. 2, S.H. 5259; Little Valley-Randolph, Pts. 1 & 2, S.H. 8149	4.26	Asphalt Concrete=4.22 Mi. Misc. Work=0.04 Mi.	$45,000 Plans $5	764,000
Chautauqua (Rte. 17)	R.C. 60-180	Falconer-Kennedy, S.H. 698 Levant-Poland Center. S.H. 5053	1.25 (0.37 Acc.)	9″ Cement Conc. Pvt.=1.21 Mi.; Asphalt Conc.=0.37 Mi. Misc. Work=0.04 Mi.	$29,000 Plans $5	534,000
Erie	C 60-2	City of Buffalo: Kensington Expressway Art. Highway Sect. 1—Contract III (East Tupper St. to East Utica Street)	1.91 (2.07 Acc.)	Asphalt Conc. Type 2A=3.94 Mi. Misc. Work=0.04 Mi.	$145,000 Plans $5	2,625,000
DISTRICT No. 6, Wm. J. Dennis, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Allegany	FASS 60-17	Hillcrest Road, C.R. 49 Proj. S-254(1)	0.18	Asphalt Conc.=0.17 Mi.; Misc. Work=0.01 Mi. Comp. I-Beam Bridge 2 Spa. 107′ Total	$7,000 Plans $5	128,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Jefferson (Int. Trg. Rte. 81)	FITS 60-19	Interstate Rte. 505, Sect. 7AB-2, FISH 59-16 (Pierrepont Manor to Adams) Interstate Rte. 505, Sect. 7AB-3, FISH 57-21 (Adams-Adams Center) Proj. I-81-3(19)	7.08 (2.36 Acc.)	Traffic Signs	$1,000 Plans $5	17,000
DISTRICT No. 8, Kurt G. Rauer, District Engineer, Pleasant Valley Rd., Poughkeepsie, New York						
Rockland	R.C. 60-183	Pearl River-Nanuet, S.H. 9006	0.46	Asphalt Concrete	$6,000 Plans $5	110,000
Westchester (Rtes. 22 & 35)	R.C. 60-182	Bedford-Goldens Bridge, S.H. 5298A Katonah-Cross River, S.H. 9251	2.25 (0.52 Acc.)	9″ Cem. Conc. Pvt.=1.92 Mi.; Grading=0.33 Mi.; Access=0.25 Mi. Cem. Conc. Pavt. 0.27 Mi. Asph. Conc. Pavt. Bridge, Comp. Plate Gird. 1 Sp., 102.5′	$50,000 Plans $5	930,000
DISTRICT No. 9, Joseph C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 17)	T.S. 60-18	Windsor-Deposit, S.H. 5338; Binghamton-Windsor, Pt. 4, S.H. 5241; Binghamton-Windsor, Pt. 3, S.H. 5148; Windsor Village: Main St., S.H. 1239	6.31 (2.70 Acc.)	Traffic Signs and Delineators	$1,100 Plans $5	19,000
DISTRICT No. 10, Austin M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Trg. Rte. 87)	FIMDETS 60-1	Interstate Route Conn. 512 Major Deegan Expressway, Cont. 3 (Park Ave. to St. Ann's Avenue) Proj. I-87-1(4)	1.05	Traffic Signs Delineators Traffic Signals	$5,000 Plans $5	85,000
Nassau	LP 60-1 MSP 60-1 WSP 60-2	Loop Parkway Meadowbrook State Parkway Wantagh State Parkway	....	Repairs and Misc. Work at 9 Bridges	$21,000 Plans $5	390,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5426) will be received at Weslaco, Texas, until 10 a.m. Central Standard Time, November 29, 1960, for furnishing labor and materials for Clearing, Earthwork, Concrete Lining, and Structures for Rehabilitation of I Lateral System, Mercedes Division, Texas, Lower Rio Grande Rehabilitation Project. Location near Weslaco, Texas in Hidalgo County. Principal items are 365,000 cu. yds., constructing embankments; 8,850 cu. yds., concrete in lateral lining; 2,500 lin. ft., furnishing and laying concrete pipe; and other work. Completion time 1,000 days. For particulars, address Bureau of Reclamation, P. O. Box 357, Weslaco, Texas; P. O. Box 1609, Amarillo, Texas; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Engineering News-Record

Reaches Your Local Contractors

Its distribution among the contractors of any one state is in proportion to the number of contractors situated in that state. The Official Proposal Columns of *Engineering News-Record* offer precisely the same efficient service to municipalities, counties, state and federal departments in every section of the United States.

OFFICIAL PROPOSALS

Bids: November 22, 1960

THE PORT OF NEW YORK AUTHORITY

Brooklyn-Port Authority Piers
Pier No. 8
Pier Shed

CONTRACT BP-210.003

Sealed proposals for the sale of materials and performance of Work for the construction of a pier shed for Pier No. 8 at the Brooklyn-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, November 22, 1960, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, October 27, 1960

OFFICIAL PROPOSALS

Bids: November 10, 1960

Board of Education
Bureau of Construction

Notice Re: Prequalification Forms for Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT The Deputy Superintendent of Schools, Office of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts.

For the General Construction, Plumbing and Drainage, Heating and Ventilating, Electrical Work and Lighting Fixtures of:

Public School 199, West 70th Street and West End Avenue, Borough of Manhattan.

Junior High School 8, 108-35 167th Street and 108th Road, Borough of Queens.

Junior High School 231, Springfield Blvd. and Conduit Avenue, Borough of Queens.

The prequalification application form must be secured at the Office of School Buildings, Bureau of Construction, Room 407, 42-15 Crescent Street, Long Island City 1, New York, and submitted to the Deputy Superintendent of Schools at the same above address.

Bids when advertised, will be received only from prequalified bidders.

The time for submitting prequalification applications by contractors will expire on Thursday, November 10, 1960.

Joseph R. Weiss
Deputy Superintendent of Schools

Starting: Thursday, October 20, 1960
Five (5) days.

Dated: October 17, 1960
JJF:dem

EMPLOYMENT OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $30.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—8 columns—60 inches to a page.

Subject to Agency Commission.

NOVEMBER 10TH ISSUE CLOSES OCTOBER 28TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Field Supervisor. Large established midwest consulting firm has permanent position in building construction supervision for thoroughly qualified and experienced man. Mechanical engineer preferred. Moving expenses paid. Send complete resume to P-4833, Engineering News-Record.

Engineer (Civil, Mechanical or Geological) P.E. desirable. Excellent opportunity for aggressive engineer to grow with an expanding eastern drilling contractor. Design and sales engineering, municipal and industrial water wells, water and sewage treatment and pumping tests. P-5349, Engineering News-Record.

Soils Engineer—M.S. degree in soils mechanics. Registered engineer under 35 years of age, location—Midwest. U. S. Citizen. P-5367, Engineering News-Record.

City Engineer, City of Sioux City, Iowa Population 90,000 to head engineering department of 30 persons; report directly to City Manager. Broad civil engineering and administrative experience. Registered in some states. Minimum age 35. Beginning salary range $870-$1040 depending on the qualifications. Apply Personnel Director, Sioux City.

The City of Sioux City, Iowa needs young Civil Engineer, preferably a recent graduate. 18 million flood control project and 7 million water pollution project present unusual opportunity to gain experience in these fields. Salary range $465-$560. Apply Personnel Director, Sioux City.

POSITIONS VACANT

Municipal Engineer for village of 60,000. Responsible for planning, designing, executing public works' projects. Minimum 5 years' experience in water, drainage, paving. Starting salary about $9,000 per year. Apply Office of Village Manager, Village Hall, Skokie, Illinois.

Chief Engineer. Large Midwest Mechanical Contractor has permanent position available for experienced engineer to supervise the design, estimating, and installation of commercial and industrial air conditioning and mechanical work. Send compiete resume to P-5467, Engineering News-Record.

Director of Specifications Department. Large Midwest consulting firm has immediate opening for capable individual with broad experience in specification writing for all branches of building construction work. Must also possess administrative ability. Send complete resume of educational background and experience, including personal qualifications and small photograph to P-5347, Engineering News-Record.

Surveyor-Draftsman for Chicago Office. Must be fully qualified for drafting, computing, checking land surveys. Age, 40-55 preferred. Salary open. Furnish samples of drafting and computing in first reply. P-5417, Engineering News-Record.

Concrete Engineer, with several years of experience in concrete and concreting materials, with some experience desirable in the precast concrete industry, Location-New Jersey. P-5488, Engineering News-Record.

Construction Engineer—Experienced, Competent, Familiar with Design of Falsework, Erection Equipment, Steel Erection Procedures, Structural Steel Detailing, and Job Organization. Wanted by Large Eastern Fabricator and Erector. P-5499, Engineering News-Record.

(Continued on page 91)

CONSTRUCTION EXECUTIVES

- PURCHASING
- CONSTRUCTION MANAGERS
- GENERAL SUPERINTENDENTS
- SUPERINTENDENTS
- PROJECT ENGINEERS
- JOB ENGINEERS
- MECHANICAL & ELECTRICAL COORDINATORS

We are looking for qualified, topnotch men, willing to work and progress with one of the country's most progressive construction firms.

Profit sharing pension trust.

WRITE ONLY with complete resume:

MALAN CONSTRUCTION CORP.

2 PARK AVENUE NEW YORK 16, N. Y.

Offices: New York • Chicago • Washington

SALES ENGINEERS

BSCE with structural steel or contracting experience

ERECTION and SHIPPING

General contracting or structural steel experience required. BSCE helpful.

If you desire to associate with dynamic pre-stressed concrete company located in Michigan offering excellent starting salary, where ability governs opportunity, *send complete resume in confidence to:*

P-5434, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

PLANT MANAGER

Preferably with experience in structural steel, miscellaneous iron or job shop steel fabrication experience. Union experience essential. Fifty man shop located in Eastern Pennsylvania. Reply stating education, experience and salary desired. All replies kept confidential.

P-5432, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

ARCHITECTS

Permanent positions in our St. Louis office for graduate Architects or equivalent experience. Prefer men who have had experience as job captain for the design of industrial and institutional type buildings. Architectural services include preparation of both preliminary and final architectural designs, plans perspective and renderings.

SPECIFICATION WRITER

Permanent position in our Architectural Section for an experienced person for the preparation of specifications and cost estimates.

Positions offer long range employment with opportunity for professional development. Many company benefits including paid vacation, sick leave, holidays. Excellent retirement plan.

Submit complete resume include salary data.

SVERDRUP & PARCEL ENGINEERING COMPANY

Engineers—Architects

915 Olive Street, St. Louis 1, Mo.

DISTRICT CONSTRUCTION MANAGER

Active construction company has need for a District Manager of Construction. Must be graduate mechanical, civil or chemical engineer with minimum of 20 years' experience in the chemical plant construction field; be willing to relocate.

Reply with all data including salaries earned and required in first letter in full confidence to:

J. W. FEAMSTER
Personnel Manager

SD PLANTS INCORPORATED
2 Park Avenue New York 16, N. Y.

ENGINEERS DESIGNERS

Permanent positions with Arthur G. McKee & Company in Cleveland for:

ENGINEERS, DESIGNERS, DRAFTSMEN
experienced in design work on Oil Refineries, Chemical Plants, Heavy Industry or any type of Steel Plant or Steel Plant Equipment design. Applications will be kept confidential.

Send detailed resume and photo to:

G. VICTOR HOPKINS
ARTHUR G. McKEE & COMPANY
2300 Chester Avenue, Cleveland 1, Ohio

WANTED

Experienced ground water Hydrologist

for immediate employment for approximately ten months contract period to set up ground water information center and design ground water program. Possibility of continued employment on salary following initial contract period. Write full particulars, including salary and expense schedule required, to E. Bruce Jones, Chief of Water Development,

WYOMING NATURAL RESOURCE BOARD
215 Supreme Court Bldg., Cheyenne, Wyoming

Engineer—Electric Furnace Design

The Carborundum Company requires a manager of engineering design who has had substantial experience in the electric furnace field. Applicants must be highly qualified graduate engineers who are capable of assuming responsibility for the design and implementation of high temperature material manufacturing facilities. Reply with full particulars to

Mr. H. A. Pilkey
Manager of Salaried Personnel
THE CARBORUNDUM COMPANY
Niagara Falls, New York

SENIOR ESTIMATORS HAWAII

Permanent positions open with Hawaiian Dredging & Construction Co., Ltd. at their Honolulu office.

Must be able to assemble complete estimates on heavy construction, highways, marine construction, with some general building experience.

Send complete resume including references and photo to:

Chief Estimator
Hawaiian Dredging & Construction Co. Ltd.
P. O. Box 3468, Honolulu 1, Hawaii

ELECTRICAL ENGINEERS and DESIGNERS

Several openings available for electrical engineers and designers experienced in powerplant (preferably hydro) design. Salary commensurate with experience. Please send complete resume to Personnel Manager.

HARZA ENGINEERING COMPANY
400 West Madison Street Chicago 6, Illinois

• POSITIONS VACANT
(Continued from page 89)

Assistant City Engineer. Age 28-40. Must have degree in Civil Engineering and five years experience in Municipal work. Salary depending on qualifications. $7200-$8000. Contact H. F. Beisner, City Engineer, Cedar Falls, Iowa.

Principal Sanitary Engineer. Western consulting organization has senior position for registered engineer with ten to twenty years experience in design of water and sewage treatment facilities. P-5500, Engineering News-Record.

Administrative Engineer-Man thoroughly familiar with highway engineering and materials to direct divisional activities of engineering-trade association. East Coast area, metropolitan office location. Position requires supervision and coordination of operations of several field engineers and involves considerable travel on eastern seaboard. Please give all particulars in first letter, including professional qualifications and salary requirements. P-5484, Engineering News-Record.

Estimator—Thoroughly experienced in take-off, pricing, and analyzing bids. Permanent position with medium-sized commercial and industrial building contractor in Connecticut. Please state minimum salary and availability. P-5510, Engineering News-Record.

Office or project engineer — Expediting, purchasing and some estimating experience. Design and field experience helpful. Permanent position with medium-size contractor in Connecticut. Please state minimum salary and availability. P-5511, Engineering News-Record.

Wanted immediately; Permanent Road Super-intendent for Utah's fastest growing county. Must be able to plan and administer a large construction and maintenance program. Should have a minimum of ten to fifteen years experience in highway administration, planning and construction. Salary open. Send resume of experience, qualifications and expected salary to "Board of County Commissioners, San Juan County Court House, Monticello, Utah.

• SELLING OPPORTUNITY AVAILABLE

West coast reinforcing bar producer looking for top notch eastern sales representative. Must have close connections with leading contractors engaged in foreign projects. RW-5514, Engineering News-Record.

"Put Yourself in the Other Fellow's Place"

TO EMPLOYERS
TO EMPLOYEES

Letters written offering Employment or applying for same are written with the hope of satisfying a current need. An answer, regardless of whether it is favorable or not, is usually expected.

MR. EMPLOYER, won't you remove the mystery about the status of an employee's application by acknowledging all applicants and not just the promising candidates.

MR. EMPLOYEE you, too, can help by acknowledging applications and job offers. This would encourage more companies to answer position wanted ads in this section.

We make this suggestion in a spirit of helpful cooperation between employers and employees.

This section will be the more useful to all as a result of this consideration.

Classified Advertising Division

McGRAW-HILL PUBLISHING CO., INC.
330 West 42nd St., New York 36, N. Y.

CONSTRUCTION SUPERINTENDENT

Minimum 15 years experience in chemical plant construction. Graduate civil or mechanical engineer preferred. Must be willing to relocate within United States.

Reply fully and in confidence to:

J. W. FEAMSTER
Personnel Manager

SD PLANTS INCORPORATED
2 Park Avenue
New York 16, N. Y.

• POSITIONS WANTED

Construction Manager, graduate civil engi-neer, age 53, qualified for supervision of all phases of heavy, industrial and railroad construction, last four years Federal projects of million dollar class, preference location south or east, available 60 days, resume on request. PW-5445, Engineering News-Record.

Executive Engineer, civil, MCE. PE in N.Y., N.J., Pa. & Del. Administrative experience in all phases of project planning, design and construction supervision of chemical and industrial plants, part projects and bridges. PW-5459, Engineering News-Record.

Construction Supt. General Construction. PW-4482, Engineering News-Record.

Design/Draft./Takeoffs — Engineer desires part time or consider full time N.Y.-N.J. area. PW-5491, Engineering News-Record.

Chief Field Accountant-Experienced large projects—Familiar full field operation, accounting, bookkeeping, cost, payroll, purchasing, expediting, all statements, all types contracts. Prefer foreign work but will relocate nationally. PW-5483, Engineering News-Record.

Project Supt 33 BSEE BSCE Pilot Supervis-ing for Arch. all const. phases high rise build. Chicago with specialty in foundations. Coordinated prime contractors on multi-million dollar store. Salary, commission etc. Will Relocate. PW-5496, Engineering News-Record.

Construction Executive-Manager. Top level admin. and field mgmt. experience in all phases bldg. constr. Organize and direct extensive projects. Particularly interested in affiliation where financial participation possible; preferably N.J. or Conn. Registered civil engineer; graduate. Age 43. Available after Nov. 15, PW-5509, Engineering News-Record.

Pilot desires position. 1800 hours with ratings. Write Arthur Hughes, 122 S. Charles St., Saginaw, Michigan.

Bridge Engineer, M.S. P.E., 11 recent years of bridge design experience. Competent, productive, reliable. Excellent references. PW-5505, Engineering News-Record.

Construction Supt. 33 years exp. Gen. Const. —industrial, schools etc. Will relocate. PW-5504, Engineering News-Record.

Wanted Foreign Assignment: Electrical in-spection, Design or Construction. Twenty years experience South America, Caribbean, Middle and Far East. Resident Engineer or Superintendent Status. PW-5512, Engineering News-Record.

Project Mgr.—Const. Supt. Flood Control, Bldgs., Roads, Tunnels, excellent Mech. background, available now, 1928 East Parkhill Drive, Washington, DC OL. 26196.

Tugboat Skipper. Docking Pilot. Ocean License. Over 30 years experience seeks overseas connection relating to maintenance, loading & operation of ships. PW-5531, Engineering News-Record.

Ass't Construction Supt. 15 years practical experience as registered builder N.Y. of one family houses, no degree but can read, draw blueprints, some design, take off quantities & estimate also field supervisor seeks overseas assignment. PW-5532, Engineering News-Record.

SEARCHLIGHT SECTION

Send new ADS or inquiries to
Class. Adv. Div. of Engineering News-Record
P. O. Box 12, N. Y. 36, N. Y.

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CHICAGO 11: 520 N. Michigan Ave.
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Have 600-Ton Jacking Capacity and trained crew for pushing any size pipe. Will rent jacks or take over job on sub-contract basis. Prefer South or Southwest. Thomas L. Finnegan & Co., 1009 W. Third St., Sterling, Illinois.

• BUSINESS OPPORTUNITY

For Sale—Engineering and land surveying practice in growing community lower Florida east coast. Reasonable price. Owner has valid reason for selling. BO-5507, Engineering News-Record.

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Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.

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STRUCTURAL ENGINEERING
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OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.
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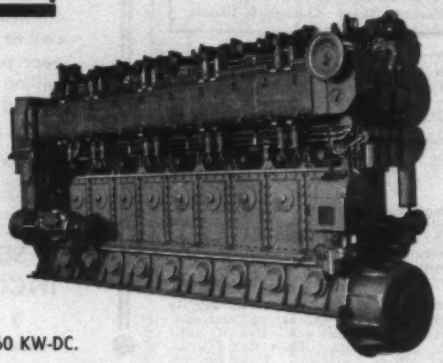
HAMILTON DIESEL . . . ➡

Model R-99-DA-Bore 9 1/16"—Stroke 13 3/8"—Type—double-acting, two-cycle, air-starting, direct reversible with port scavenging and solid fuel injection—9 upper and 9 lower cylinders—Brake horsepower at 700 RPM-1800—Weight 26,500 lbs.



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FAIRBANKS MORSE Model 38E 5¼—Generator by Delco 100 KW-AC—with panel board.

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SUPERIOR BLOWER SETS 230 Horsepower—Model ID-8L—Blower by Roots Connersville—Size 14" x 23"—8,000 CFM

Your inquiry will receive our prompt attention.

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4161 Marion 6 yd. Elec. Shovel
2400 Lima 6 yd. Std. & H.L. Shovels
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1201 Lima & 54-B B.E. Standard Shovels
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PIONEER 3240 JAW PORTABLE PRIMARY PLANT

New. Less ½ price. Mdl. 56A w/apron feeder, conveyor, Waukesha power, grizzly, Athey tracks. Gov't surplus, mfg. 1952, inside storage, unused, replacement value appr. $70,000. Our price $29,000, St. Louis, Mo.

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22 Ton Euclid Rear Dumps

Five 46TD—Year 1953
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(Only 3 mos. used)
Excellent working condition attractively priced.
Also
Four 23TDT-122W, 17 yd. Bottom Dumps
Year 1955, good working condition attractively priced.
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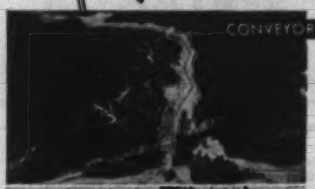
Liquidating $14,000,000.00 worth of well-maintained, top name equipment at **BARGAIN PRICES!**



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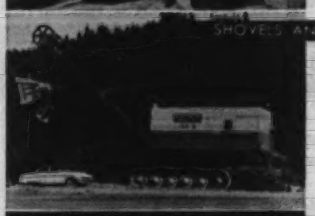
2 miles long, 42" wide rubber belt. 9 flights, available individually, ranging from 672 ft. long to 1885 ft. long. Braking by electric motors acting as generators under belt load; also mechanical brakes. System includes drive-over hopper loading station for scraper discharge, screening and crushing plant, three drive-under terminal bins with total capacity of 1500 cu. yds.



SHOVELS AND CRANES

2—Model 150B Bucyrus Erie 6 cu. yd. Electric Shovels and Draglines (Note: 8 cu. yd. Dippers w/handles available for above); 1—Model 120B Bucyrus Erie 5 cu. yd. Electric Shovel and Dragline; 1—Model 38B Bucyrus Erie 1½ cu. yd. Shovel, Dragline, Backhoe, diesel; 1—Model 22B Bucyrus Erie ¾ cu. yd. Shovel, Dragline, Backhoe, diesel.

MOTOR PATROLS

9—Model 12 Caterpillar Motor Patrols, 8T, 80D, 70, and 71D Series.

HAULING UNITS

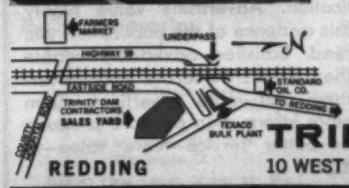
8—Model LRVX Mack Tractors w/Model 137W Euclid 30 cu. yd. Bottom Dump Trailers powered by NVH-12-B1 Cummins Engines; 10—Model PH95AC International Payhauler Tractors w/Model PW20 30 cu. yd. Athey Bottom Dump Trailers.

END DUMP EUCLIDS

5—Model 46TD Euclid End Dump Units, 15 cu. yd., powered by Model NHRB1S Cummins Engines; 10—Model 63TD Euclid End Dump Units, 15 cu. yd., powered by Model 6-110 GMC Engines.

LOADERS

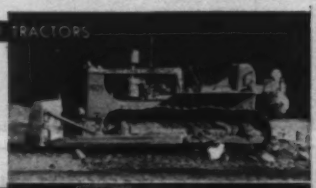
1—Model 175ADS Michigan 3 cu. yd. loader powered by Model 1350KBS Waukesha Engine; 1—Model D4 Caterpillar Loader w/Model EA4 Trackson Loader.



REDDING

CRAWLER TRACTORS

15—Model D9 Caterpillar Tractors w/P.C.U.'s and Dozers, 18A Series (Note: 4—Ateco Hydraulic Rippers available for above); 21—Model D8 Caterpillar Tractors w/P.C.U.'s and Dozers, 14A Series (Note: 6—Caterpillar #8 Hydraulic Rippers available for above).



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Carborundum Co., The 90
Cohen Iron Co., Leopold..... 94
Concrete Equipment Co. 94
Conmaco Inc. 94

Forsythe Equipment Co. 94
Foster Co. L. B..... 94

Gillis & Co. 94
Greenpoint Pipe Supply Corp..... 94

Harza Engineering Co. 91
Hawaiian Dredging & Construction Co. 90

Malan Construction Corp. 90
McKee & Co., Arthur G. 90
Memphis Equipment Co..... 92
Mississippi Valley Equipment Co..... 94

National Blue Print Co..... 91
National Schools of Construction.... 91

S D Plants Inc. 90, 91
Seaboard Equipment Co. Inc..... 92
Ship Salvage Division Walsh Construction Co. 92
Smith Inc. L. B. 92, 94
Stanhope Inc. R. C. 94
Sverdrup & Parcel Engineering Co.... 90
Swabb Equipment Co. Inc., Frank... 92

Trinity Dam Contractors..... 93

Warren-Knight Co. 91
Wenzel Machinery Co. 92
Western Services Corp. 94
Whisler Equipment Co..... 92
Whisler Steel Piling Co..... 94
Wilson Engineering Corp. 91
Wyoming Natural Resources Board.. 90

ADVERTISERS IN THIS ISSUE

Air Placement Equipment Company..... 81
Alexander Drafting Equipment Co..... 59
Allis-Chalmers 72-73
Aluminum Company of America.....50-52
American Bridge Div., United States Steel Corp. 54
American Pipe and Construction Co...3rd Cover
American Steel & Wire Div., United States Steel Corp. 14-15
Arkwright Finishing Division..... 48

Bethlehem Steel Co..... 18

Charles Bruning Co., Inc..... 13
Cement Gun Company..... 70
Chicago Bridge & Iron Company.....2nd Cover
The Colorado Fuel & Iron Corp., Wickwire Spencer Steel Div.....36-37
Concrete Reinforcing Steel Institute..... 56
Connors Steel Division, H. K. Porter Co., Inc. 71

F. W. Dodge Corporation..... 16
Dorr-Oliver, Inc. 78
Richard Dudgeon Inc..... 74

Eastman Kodak Company.....10-11
Elgood Concrete Forms, Corp..... 65

Fennel Instrument Corp. of America..... 55

Gardner-Denver Company 29
The Goodyear Tire & Rubber Co., Truck Tires Dept. 7
Griffin Wellpoint Corp..... 81
W. & L. E. Gurley..... 64

Harbert Construction Corp..... 56
Heppenstall Company 70

Johns-Manville Corp. 40

Koppers Company, Inc., Tar Products Div.. 6

Liberty Mutual Insurance Company..... 20

Macomber, Inc. 57
Manitowoc Engineering Corp..... 9
Mayo Tunnel & Mine Equipment..... 65
Miller Electric Mfg. Co., Inc..... 74
Mobile Drilling, Inc..... 12
Moretrench Corporation 27
Murphy Diesel Company..... 1

Northwest Engineering Co..... 3

Ozalid Div., General Aniline & Film Corp.. 33

Pacific Crane & Rigging Co..... 12
The Patent Scaffolding Co., Inc..... 68
Portland Cement Association..... 49
Posey Iron Works, Inc..... 65
Precision Instruments Inc..... 59
The Preload Company, Inc..... 53

Republic Steel Corporation.....62-63
The Ruberoid Co..... 75
Joseph T. Ryerson & Sons, Inc.....30-31

Select-A-Gift 67
John W. Stang Corp..... 67
Symons Clamp & Mfg. Co..... 2

Texaco Inc. 4-5
Timber Structures, Inc..... 79
The Timken Roller Bearing Co.....4th Cover
The Torrington Company..... 58

U. S. Steel Corp.....42-43; 76-77

R. G. Varner Steel Products, Inc..... 47

Waukesha Motor Co..... 60
Western Architect & Engineering..... 81
Wild Heerbrugg Instruments, Inc..... 8
R. D. Wood Company..... 61

Professional Services 95-98

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 89-91
Notices
Proposals 87-89
Equipment
(Used or Surplus)
(For Rent, Sales Wanted)....92-94
Advertisers' Index 98

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Nuclear Power Milestone

DEDICATION of Commonwealth Edison Co.'s 180,000-kw nuclear power plant near Chicago on October 12 put the spotlight on the engineering and construction of A-power. It pointed up the practicability of building to produce electricity by a steam-driven generator powered by a boiling water reactor. Water, boiled by fission heat inside the reactor core of this plant, produces steam at 545F, which is piped to the turbine-generator under a pressure of 1,000 psi.

The $51-million power station is the first full-scale nuclear power plant to be put into operation in the U.S. with private financing only. It is also—for the present—the largest operating nuclear power plant in the world. As owner of the plant, Commonwealth Edison spent $36 million. The remaining $15 million of the cost was paid by the eight-member Nuclear Power Group, comprised chiefly of utility companies. For them it was a research and development expense. General Electric Co. designed the plant and Bechtel Corp. was the engineer-constructor.

Designers of the plant had little precedent in solving many of its operational and safety requirements; its builders had to combine their know-how with "learn-how" as construction progressed from one intricate phase to another. The 300-ton reactor vessel in which fission takes place was designed with steel walls over 5 in. thick; its 190-ft-dia containment sphere, extending from 40 ft below ground to 150 ft above grade, was fabricated of 3,500 tons of welded steel plates nearly an inch and a half thick; 27,000 cu yd of reinforced concrete were required for structural support and shielding walls, some of which are 13 ft thick. It is noteworthy that the plant was completed in a little over two years; operation of the full 180,000 kw was started four months ahead of schedule.

In his dedication message, John A. McCone, Chairman of the U.S. Atomic Energy Commission, paid tribute to the "boldness, courage and foresight of American enterprise" in conceiving and accomplishing the nuclear power project despite the financial, legal, technical and other formidable obstacles that had to be overcome. He also voiced the opinion that "the successful operation of this plant proves that others could be planned immediately which would have greater power output at lower unit cost and with higher efficiency."

Mr. McCone's appraisal of the nuclear power situation is a challenge for power plant designers and constructors. Successful commercial production of nuclear-electric power on such a large scale at Dresden (the plant produces enough electricity to serve a city of over 200,000) does not necessarily mean we have arrived in this field—at other than a significant milestone.

The development of nuclear power must continue. And with economics a big factor, rapid advancements must be achieved in developing nuclear plants and processes that will produce electricity more efficiently, at lower cost. It will be some time before nuclear power can compete economically with hydro power or conventional coal or oil burning steam electric plants. That makes the challenge all the greater.

Agreement on the Columbia

INTERNATIONAL RELATIONS are at their best when two neighboring countries plan a mutually advantageous development of a natural resource they share. It was in these terms that President Eisenhower hailed the new agreement on future U.S.-Canadian development of the Columbia Basin's waters last week. And having thus approved the agreement on the Columbia, which must now be written into treaty form, the President headed south to the Rio Grande to meet Mexico's President Mateos near the site of Amistad Dam, yet another joint construction effort to be undertaken by the U.S. with its neighbors to the south.

It is in no way depreciating the scope or benefits of the $100 million Amistad project to point out that the Columbia River agreement will mean more than a billion dollars worth of water resources construction for our Pacific Northwest and British Columbia. Here will be another U.S.-Canadian venture of the same scale as development of the International Rapids on the St. Lawrence River. Here is a plan for regulating the upper Columbia River, which will make possible, among other things, an increase in Grand Coulee Dam's power capacity from 1,974,000 kw to 3,672,000 kw.

In Canada, Prime Minister Diefenbaker hailed the Columbia Basin agreement as assuring both countries "enormous benefits." While the three dams planned north of the border are largely for storage, the water stored behind them will create power in the U.S., and Canada will have half of the electricity produced.

On both sides of the world's longest undefended border, the Columbia agreement, reached by democratic process, can be hailed this week as key to a billion and more dollars worth of construction—dams, powerhouses and transmission lines. Over $400 million worth of work is expected to be done on each side of the border in this decade, and more will follow.

On the U.S. side, of course, there remain the familiar problems of who's to build the needed facilities: federal or local agencies, private or public. But such national questions should not be allowed to delay a treaty or a start on this great international venture, as they delayed U.S. development at Niagara for many years.

It is possible that a treaty may be before the Senate for ratification before President Eisenhower leaves the White House January 20. Unlikely as it may be (it took 10 years of negotiating to get this far) we'd like to see the treaty ratified before Mr. Eisenhower takes his leave.

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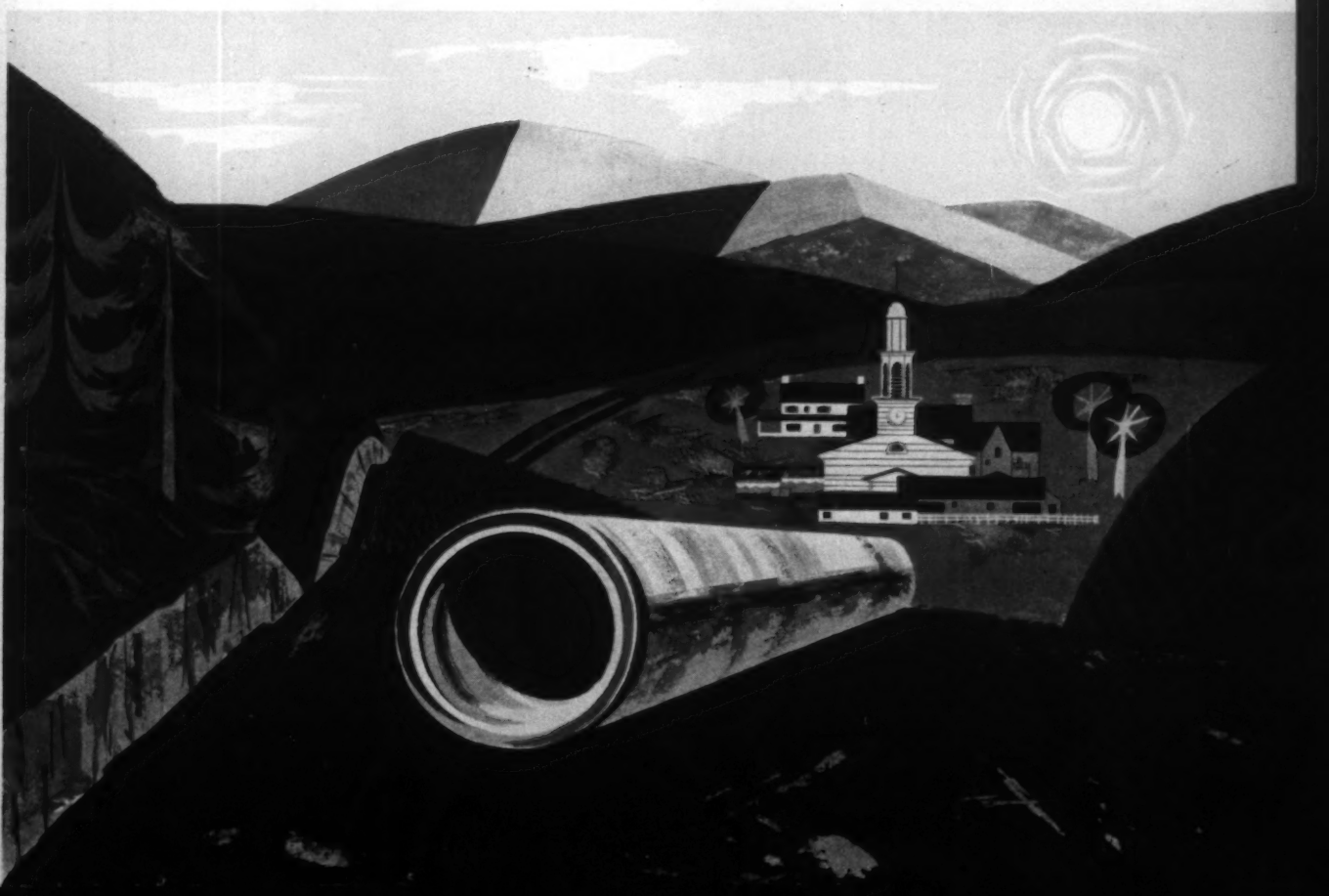

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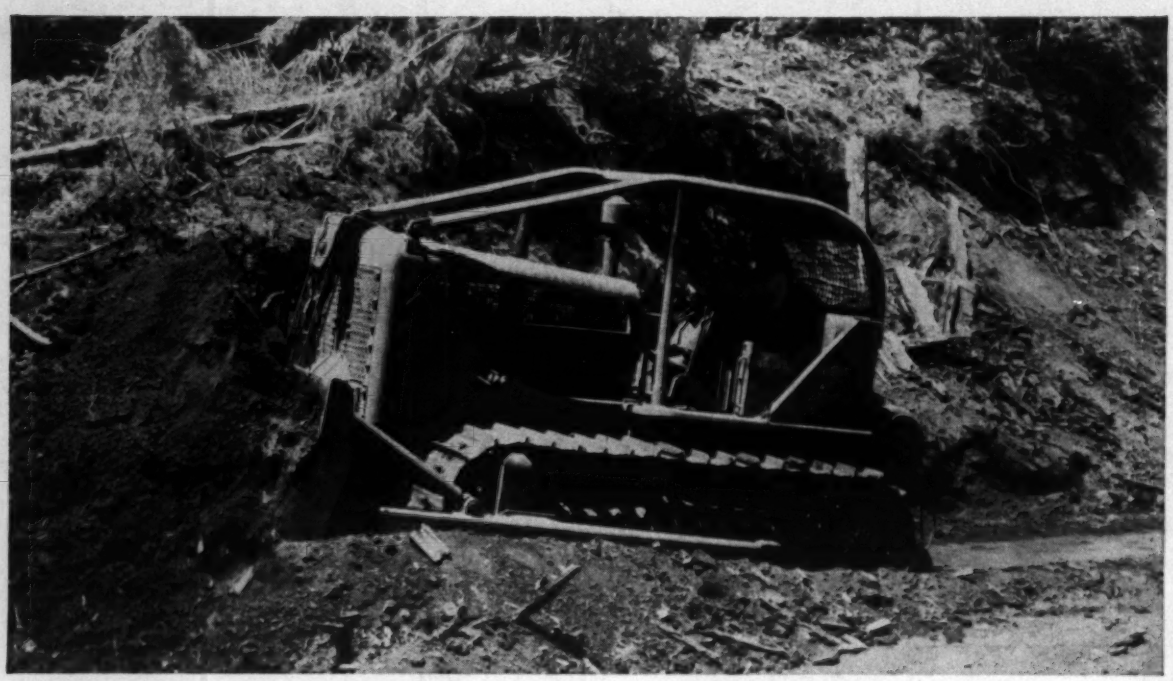

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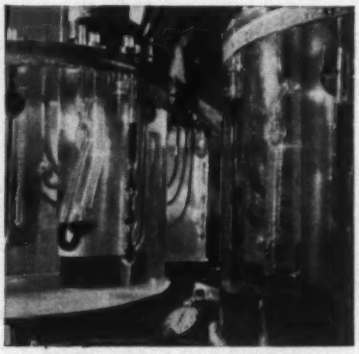

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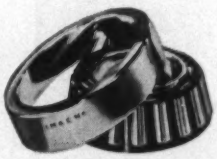

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